



STIC Search Report

EIC 1700

STIC Database Tracking Number: 10/635777

TO: Camie Thompson
Location: REM 10D28
Art Unit : 1774
June 15, 2005

Case Serial Number: 10/635777

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-3519
usha.shrestha@uspto.gov

Search Notes

SEARCH REQUEST FORM**Scientific and Technical Information Center**

Requester's Full Name: Carrie S. Thompson Examiner #: 79244 Date: 6/2/05
 Art Unit: 174 Phone Number 30 571-272150 Serial Number: 10/635777
 Mail Box and Bldg/Room Location: Penta 101709 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Inorganic electroluminescent device + method

Inventors (please provide full names): Akiyoshi Mikami

Earliest Priority Filing Date: 8/7/02

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please do a search on claims 1-14.

Thank you

Best Available Copy

STAFF USE ONLY

Searcher: Lisa

Searcher Phone #:

Searcher Location:

Date Searcher Picked Up: 6/15/05

Date Completed: 6/15/05

Searcher Prep & Review Time: 60

Clerical Prep Time: 30

Online Time: 150

Type of Search

NA Sequence (#)

AA Sequence (#)

Structure (#)

Bibliographic

Litigation

Fulltext X

Patent Family

Other

Vendors and cost where applicable

STN \$ 414.79

Dialog

Questel/Orbit

Dr.Link

Lexis/Nexis

Sequence Systems

WWW/Internet

Other (specify)



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- > I am an examiner in Workgroup: Example: 1713
- > Relevant prior art **found**, search results used as follows:
- 102 rejection
 - 103 rejection
 - Cited as being of interest.
 - Helped examiner better understand the invention.
 - Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

> Relevant prior art **not found**:

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention.

Comments:

WHAT IS CLAIMED IS:

10/635,777

1. An inorganic electroluminescent device comprising in the following order:
 - 5 an underlayer formed of a first compound semiconductor of Group IIa-VIb; and a light emitting layer formed of a second compound semiconductor of Group IIa-VIb, said first compound semiconductor and said second compound semiconductor having the same crystalline structure.
 - 10
 2. The inorganic electroluminescent device according to claim 1, wherein said first compound semiconductor and said second semiconductor have a rock-salt structure.
- 15
3. The inorganic electroluminescent device according to claim 1, wherein said first compound semiconductor and said second compound semiconductor have an orientation in a <100> direction.
- 20
4. The inorganic electroluminescent device according to claim 1, wherein the bandgap of said first compound semiconductor is larger than the bandgap of said second compound semiconductor.

5. The inorganic electroluminescent device according to claim 1, wherein said first compound semiconductor contains magnesium and sulfur, and said second compound semiconductor contains magnesium and sulfur.

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6. The inorganic electroluminescent device according to claim 5, wherein said second compound semiconductor further contains calcium.

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7. The inorganic electroluminescent device according to claim 1, wherein said second compound semiconductor contains $Mg_{1-x} Ca_x S$, and the Ca composition ratio x is $0.1 \leq x \leq 0.15$.

15 8. The inorganic electroluminescent device according to claim 1, wherein the thickness of said underlayer is not larger than 500 nm.

20 9. The inorganic electroluminescent device according to claim 8, wherein the thickness of said underlayer is not larger than 200 nm.

10. The inorganic electroluminescent device according to claim 1, wherein the thickness of said light emitting layer is larger than the thickness of said underlayer.

11. The inorganic electroluminescent device according to claim 1, wherein said light emitting layer contains a rare earth element or a transition metal element as a substance acting as a luminescent center.

5

12. The inorganic electroluminescent device according to claim 11, wherein said substance acting as the luminescent center is an element selected from the group consisting of europium, cerium, and manganese.

10

13. The inorganic electroluminescent device according to claim 1, wherein said second compound semiconductor contains $Mg_{1-x} Ca_x S$, and Eu is doped into $Mg_{1-x} Ca_x S$ as a substance acting as a luminescent center, and the composition ratio of Eu to 15 Mg is not larger than 0.1.

14. The inorganic electroluminescent device according to claim 13, wherein the composition ratio of Eu to Mg is not larger than 0.01.

20

15. A method of fabricating an inorganic electroluminescent device, comprising the steps of:
forming an underlayer principally composed of a first compound semiconductor of Group IIa-VIb; and
25 forming on said underlayer a light emitting layer

principally composed of a second compound semiconductor of Group IIa-VIb having the same crystalline structure as that of said first compound semiconductor and doped with a substance acting as a luminescent center.

5

16. The method according to claim 15, wherein
said step of forming a underlayer comprises the step of
forming said underlayer at a first temperature, and
said step of forming a light emitting layer comprises
10 the step of forming said light emitting layer at a second
temperature higher than said first temperature.

17. The method according to claim 16, wherein
said first temperature is not higher than 100°C, and
15 said second temperature is higher than 100°C.

18. The method according to claim 16, wherein
said second temperature is not lower than 150°C nor
higher than 350°C.

20

19. The method according to claim 15, wherein
said first compound semiconductor contains magnesium and
sulfur, and said second compound semiconductor contains
magnesium and sulfur.

25

20. The method according to claim 19, wherein
said second compound semiconductor further comprises
calcium.

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FILE 'HCAPLUS' ENTERED AT 13:40:38 ON 15 JUN 2005

L1 1 S US20040032203/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 13:41:08 ON 15 JUN 2005

L2 6 S E1-E6
L3 1 S 119537-26-7/RN
L4 1 S 656222-29-6/RN
L5 1 S 12032-36-9/RN
L6 16 S (MG(L)S)/ELS(L)2/ELC.SUB
L7 18 S (MG(L)CA(L)S)/ELS(L)3/ELC.SUB
L8 16 S (MG(L)CA(L)S(L)EU)/ELS
L9 0 S (MG(L)CA(L)S(L)EU)/ELS(L)3/ELC.SUB
L10 1 S 7440-53-1/RN

FILE 'HCAPLUS' ENTERED AT 15:21:18 ON 15 JUN 2005

L11 16 S L3
L12 1 S L4
L13 29 S L7
L14 4 S L8
L15 33 S L11 OR L12 OR L13 OR L14
L16 866 S L5
L17 878 S L6
L18 878 S L16 OR L17
L19 12 S L15 AND L18
L20 5 S L19 AND (?LUMINES? OR LIGHT? ?EMIT? OR LUMINES? OR LE
L21 166 S L18 AND (?LUMINES? OR LIGHT? ?EMIT? OR LUMINES? OR LE
L22 98 S L18(L) (?LUMINES? OR LIGHT? ?EMIT? OR LUMINES? OR LED)
L23 79 S L22 AND OPTIC?/SC
L24 28 S L23 AND DEV/RL
L25 15 S L24 AND LAYER?
L26 65 S INORG?(A)?LUMINES?(L)DEVICE?
L27 42 S L26 AND OPTIC?/SC
L28 1 S L27 AND ((MG OR MAGNESIUM) AND (S OR SULFUR))
L29 1 S L27 AND ((MG OR MAGNESIUM OR CALCIUM OR CA) AND (S OR
L30 24 S L27 AND LAYER?
L31 7 S L30 AND MAGNE?
L32 4 S L30 AND CALCI?
L33 7 S L28 OR L29 OR L31 OR L32
L34 15 S L15 AND (?LUMINES? OR LIGHT? ?EMIT? OR LUMINES? OR LE
L35 28 S L34 OR L25
L36 34 S L35 OR L33
L37 10 S L19 AND (?LUMIN? OR LIGHT? OR LUMINES? OR LED OR EL)
L38 29 S L36 NOT L37

FILE 'REGISTRY' ENTERED AT 16:02:59 ON 15 JUN 2005

FILE 'HCAPLUS' ENTERED AT 16:04:13 ON 15 JUN 2005

=> d cost

COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
CONNECT CHARGES	7.17	142.30
NETWORK CHARGES	0.18	4.44
SEARCH CHARGES	0.00	73.60
DISPLAY CHARGES	191.40	194.45
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THOMPSON 10/635,777

Page 2

FULL ESTIMATED COST	198.75	414.79
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-28.47	-29.20

IN FILE 'HCAPLUS' AT 16:06:08 ON 15 JUN 2005

=> fil reg

FILE 'REGISTRY' ENTERED AT 16:02:59 ON 15 JUN 2005

=> d his ful

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 D SCAN
 D ALL
 SEL RN

FILE 'REGISTRY' ENTERED AT 13:41:08 ON 15 JUN 2005

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 OR 132085-96-2/BI OR 50926-11-9/BI OR 656222-29-6/BI
 OR 7440-53-1/BI)
 D SCAN
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 D SCAN
 L4 1 SEA ABB=ON PLU=ON 656222-29-6/RN
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 L6 16 SEA ABB=ON PLU=ON (MG(L)S)/ELS(L)2/ELC.SUB
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 L8 16 SEA ABB=ON PLU=ON (MG(L)CA(L)S(L)EU)/ELS
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 L14 4 SEA ABB=ON PLU=ON L8
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 L16 866 SEA ABB=ON PLU=ON L5
 L17 878 SEA ABB=ON PLU=ON L6
 L18 878 SEA ABB=ON PLU=ON L16 OR L17
 L19 12 SEA ABB=ON PLU=ON L15 AND L18
 L20 5 SEA ABB=ON PLU=ON L19 AND (?LUMINES? OR LIGHT?
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 L21 166 SEA ABB=ON PLU=ON L18 AND (?LUMINES? OR LIGHT?
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 L22 98 SEA ABB=ON PLU=ON L18(L) (?LUMINES? OR LIGHT? ?EMIT?
 OR LUMINES? OR LED)
 L23 79 SEA ABB=ON PLU=ON L22 AND OPTIC?/SC
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 L29 1 SEA ABB=ON PLU=ON L27 AND ((MG OR MAGNESIUM OR
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 L30 24 SEA ABB=ON PLU=ON L27 AND LAYER?
 L31 7 SEA ABB=ON PLU=ON L30 AND MAGNE?
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L37   10 SEA ABB=ON PLU=ON L19 AND (?LUMIN? OR LIGHT? OR
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L38   29 SEA ABB=ON PLU=ON L36 NOT L37

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FILE 'REGISTRY' ENTERED AT 16:02:59 ON 15 JUN 2005

FILE HCAPLUS

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L12     1 SEA FILE=HCAPLUS ABB=ON PLU=ON L4
L13     29 SEA FILE=HCAPLUS ABB=ON PLU=ON L7
L14     4 SEA FILE=HCAPLUS ABB=ON PLU=ON L8
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L14
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LIGHT? ?EMIT? OR LUMINES? OR LED)
L23 79 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 AND OPTIC?/SC
L24 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L23 AND DEV/RL
L25 15 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND LAYER?
L26 65 SEA FILE=HCAPLUS ABB=ON PLU=ON INORG?(A)?LUMINES?(L)D
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L27 42 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND OPTIC?/SC
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MAGNESIUM) AND (S OR SULFUR))
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MAGNESIUM OR CALCIUM OR CA) AND (S OR SULFUR))
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L34 15 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 AND (?LUMINES? OR
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L35 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 OR L25
L36 34 SEA FILE=HCAPLUS ABB=ON PLU=ON L35 OR L33
L37 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L19 AND (?LUMIN? OR
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L38 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L36 NOT L37

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=> fil hcap
FILE 'HCAPLUS' ENTERED AT 16:04:13 ON 15 JUN 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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=> d 137 1-10 ibib abs hitstr hitind
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L37 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:651642 HCAPLUS
DOCUMENT NUMBER: 141:177468
TITLE: Steel containing refined inclusions for forged
integrated crankshafts
INVENTOR(S): Kagawa, Yasunori; Sakamoto, Koichi
PATENT ASSIGNEE(S): Kobe Steel, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
JP 2004225128	A2	20040812	JP 2003-16108	2003 0124

PRIORITY APPLN. INFO.: JP 2003-16108

2003
0124

- AB The claimed steel contains ≤ 0.007 weight% (not containing 0) S, ≥ 5 ppm Ca, ≥ 5 ppm and ≤ 0.006 weight% Mg, 0.015-0.04 weight% Al, and ≤ 15 ppm (not containing 0) O and satisfies $35\text{Ca} \leq 40\text{Mg} + 1200$ (the element symbols indicate their ppm contents). The steel may contain C ≤ 1.0 (not containing 0), Si ≤ 0.6 (not containing 0), Mn ≤ 1.5 (not containing 0), Ni ≤ 4 (not containing 0), Cr ≤ 12 (not containing 0), Mo ≤ 1.5 (not containing 0), and V ≤ 0.3 weight% (not containing 0). The steel may satisfy $\text{Mg} + \text{Ca} \geq (4/3)\text{S}$ (the element symbols indicate their ppm contents) and contain sulfide inclusions free from Mn. The forged steel products, e.g., crankshafts for ships, provide high fatigue strength.
- IT 12032-36-9P, Magnesium sulfide (MgS) 119537-26-7P
, Calcium magnesium sulfide ((Ca,Mg)S)
(steel containing refined Mn-free sulfide inclusions for forged crankshafts of ships)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

- RN 119537-26-7 HCAPLUS
CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

- IC ICM C22C038-00
ICS B21J005-00; B21K001-08; C22C038-06; C22C038-60
- CC 55-3 (Ferrous Metals and Alloys)
- IT 1305-78-8P, Calcia, preparation 1309-48-4P, Magnesia, preparation 1344-28-1P, Alumina, preparation 11137-98-7P, Aluminum magnesium oxide
(inclusions; steel containing refined Mn-free sulfide inclusions for forged crankshafts of ships)
- IT 7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses 7440-70-2, Calcium, uses 7704-34-9, Sulfur, uses 7782-44-7, Oxygen, uses
(microalloying element; steel containing refined Mn-free sulfide inclusions for forged crankshafts of ships)
- IT 12032-36-9P, Magnesium sulfide (MgS) 20548-54-3P, Calcium sulfide (CaS) 119537-26-7P, Calcium magnesium sulfide ((Ca,Mg)S)
(steel containing refined Mn-free sulfide inclusions for forged crankshafts of ships)

L37 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:492786 HCAPLUS
DOCUMENT NUMBER: 141:57601
TITLE: Steels with excellent heat-affected-zone

INVENTOR(S) : toughness for crude oil tanks
 Hasegawa, Toshihisa; Minagawa, Masaki; Usami,
 Akira; Shishibori, Akira
 PATENT ASSIGNEE(S) : Nippon Steel Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004169048	A2	20040617	JP 2002-332617	2002 1115
PRIORITY APPLN. INFO.:			JP 2002-332617	2002 1115

AB The steels have compns. containing C 0.001-0.2, Si 0.01-1, Mn 0.1-2, P \leq 0.02, S \leq 0.01, Cu 0.01-1.5, Al 0.001-0.1, N 0.001-0.01, Ti 0.005-0.03, Ca 0.0005-0.003, and Mo 0.01-0.5 and/or W 0.02-1 weight% [Ceq. \leq 0.4, Ceq. = C + Mn/6 + (Cu + Ni)/15 + (Cr + Mo + W + V)/5] and include oxide grains (containing Ca, Al, and optionally S and/or Mg at prescribed contents; definition given) with 0.005-2 μm equivalent circular diameter at d. of 100-3000/mm². Preferably, the steels further contain dispersed grains of CaS, CuS, Ca Cu sulfides, MgS, etc. Since the dispersed grains pinning grains for austenite grain boundaries, the steels show high corrosion resistance and inhibit generation of sulfur-containing corrosion products (sludges).
 IT 12032-36-9, Magnesium sulfide 119537-26-7, Calcium magnesium sulfide ((Ca,Mg)S) (grain-boundary-pinning grains; steels with excellent HAZ toughness for crude oil tanks)
 RN 12032-36-9 HCPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

RN 119537-26-7 HCPLUS
 CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

IC ICM C22C038-00
 ICS C22C038-16; C22C038-60
 CC 55-3 (Ferrous Metals and Alloys)
 Section cross-reference(s): 51
 IT 1317-40-4, Copper sulfide (CuS) 12032-36-9, Magnesium sulfide 18820-29-6, Manganese sulfide 20548-54-3, Calcium

sulfide 119537-26-7, Calcium magnesium sulfide
 $((\text{Ca},\text{Mg})\text{S})$ 472975-35-2, Calcium copper sulfide $((\text{Ca},\text{Cu})\text{S})$
 705224-01-7, Aluminum calcium oxide sulfate
 $(\text{Al}_0.46\text{Ca}_0.29\text{O}_0.21(\text{SO}_4)_0.01)$ 705224-07-3, Aluminum
 calcium oxide $(\text{Al}_0.39\text{Ca}_0.31\text{O}_0.28)$ 705224-16-4, Aluminum
 calcium magnesium oxide sulfate $(\text{Al}_0.33\text{Ca}_0.23\text{Mg}_0.03\text{O}_0.37(\text{SO}_4)_0.01)$
 705224-23-3, Aluminum calcium magnesium oxide
 $(\text{Al}_0.32\text{Ca}_0.2\text{Mg}_0.02\text{O}_0.44)$ 705224-29-9, Aluminum calcium
 magnesium oxide sulfate $(\text{Al}_0.53\text{Ca}_0.27\text{Mg}_0.02\text{O}_0.12(\text{SO}_4)_0.01)$
 705224-33-5, Aluminum calcium oxide sulfate
 $(\text{Al}_0.5\text{Ca}_0.35\text{O}_0.09(\text{SO}_4)_0.01)$ 705224-38-0, Aluminum
 calcium magnesium oxide sulfate $(\text{Al}_0.33\text{Ca}_0.32\text{Mg}_0.02\text{O}_0.28(\text{SO}_4)_0.01)$
 705224-45-9, Aluminum calcium oxide sulfate
 $(\text{Al}_0.48\text{Ca}_0.19\text{O}_0.3(\text{SO}_4)_0.01)$ 705224-51-7, Aluminum
 calcium magnesium oxide sulfate $(\text{Al}_0.38\text{Ca}_0.34\text{Mg}_0.03\text{O}_0.2(\text{SO}_4)_0.01)$
 705224-58-4, Aluminum calcium magnesium oxide sulfate
 $(\text{Al}_0.46\text{Ca}_0.18\text{Mg}_0.06\text{O}_0.24(\text{SO}_4)_0.01)$ 705224-65-3, Calcium copper
 magnesium sulfide $((\text{Ca},\text{Cu},\text{Mg})\text{S})$
 (grain-boundary-pinning grains; steels with excellent HAZ
 toughness for crude oil tanks)

L37 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:141636 HCAPLUS
 DOCUMENT NUMBER: 140:171982
 TITLE: Inorganic electroluminescent device
 and method of fabricating the same
 INVENTOR(S): Mikami, Akiyoshi
 PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 15 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 2004032203	A1	20040219	US 2003-635777	2003 0807
JP 2004071398	A2	20040304	JP 2002-230311	2002 0807
CN 1489423	A	20040414	CN 2003-153048	2003 0807
PRIORITY APPLN. INFO.:			JP 2002-230311	A 2002 0807

AB An inorg. electroluminescent device is described comprising an underlayer formed of a first compound semiconductor of Group IIa-VIb (e.g., MgS); and a light emitting layer (e.g., $(\text{Mg},\text{Ca})\text{S}$) formed of a second compound semiconductor of Group IIa-VIb, the first and the second compound semiconductor having the same crystalline structure. A method of fabricating the inorg. electroluminescent device is also described entailing forming an underlayer principally composed of a first compound semiconductor of Group IIa-VIb; and forming on the underlayer a

light emitting layer principally composed of a second compound semiconductor of Group IIa-VIb having the same crystalline structure as that of the first compound semiconductor and doped with a substance acting as a luminescent center.

IT 119537-26-7, Calcium magnesium sulfide ((Ca,Mg)S)
 656222-29-6, Calcium magnesium sulfide (Ca0.1Mg0.9S)
 (light emitting layer; inorg.
electroluminescent device having two semiconductor layers having same crystalline structure)

RN 119537-26-7 HCAPLUS

CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

RN 656222-29-6 HCAPLUS

CN Calcium magnesium sulfide (Ca0.1Mg0.9S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.1	7440-70-2
Mg	0.9	7439-95-4

IT 12032-36-9, Magnesium sulfide (MgS)
 (underlayer; inorg. **electroluminescent device having two semiconductor layers having same crystalline structure)**)

RN 12032-36-9 HCAPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg == S

IC ICM H01J001-62
 ICS H01J063-04

INCL 313502000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s) : 76

ST **electroluminescent device dual semiconductor layer fabrication**

IT **Electroluminescent devices**
 Semiconductor device fabrication

(inorg. **electroluminescent device having two semiconductor layers having same crystalline structure)**)

IT 50926-11-9, Indium tin oxide
 (cathode; inorg. **electroluminescent device having two semiconductor layers having same crystalline structure)**)

IT 132085-96-2, Zirconium nitride silicide
 (insulating layer; inorg. **electroluminescent device having two semiconductor layers having same crystalline structure)**)

IT 119537-26-7, Calcium magnesium sulfide ((Ca,Mg)S)
 656222-29-6, Calcium magnesium sulfide (Ca0.1Mg0.9S)
 (light emitting layer; inorg.)

electroluminescent device having two semiconductor layers having same crystalline structure)
IT 7440-53-1, Europium, uses
(light emitting layer; inorg.
electroluminescent device having two semiconductor layers having same crystalline structure)
IT 12032-36-9, Magnesium sulfide (MgS)
(underlayer; inorg. electroluminescent device having two semiconductor layers having same crystalline structure)

L37 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:376763 HCAPLUS
DOCUMENT NUMBER: 138:381687
TITLE: Resonance energy transfer assays based on luminescent inorganic doped nanoparticles
INVENTOR(S): Bohmann, Kerstin; Hoheisel, Werner; Koehler, Burkhard; Dorn, Ingmar
PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003040024	A2	20030515	WO 2002-EP12256	2002 1104
WO 2003040024	A3	20031023		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10153829	A1	20030528	DE 2001-10153829	2001 1105
CA 2465646	AA	20030515	CA 2002-2465646	2002 1104
EP 1444517	A2	20040811	EP 2002-787546	2002 1104
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
JP 2005508012	T2	20050324	JP 2003-542078	2002 1104

US 2005064604	A1	20050324	US 2004-494390	
				2004
PRIORITY APPLN. INFO.:				0430
			DE 2001-10153829	A
				2001
				1105
			WO 2002-EP12256	W
				2002
				1104

- AB The invention relates to an assay based on resonance energy transfer (RET), comprising a 1st mol. group A, which is marked with ≥ 1 energy donor, and ≥ 1 2nd mol. group B which is marked with ≥ 1 energy acceptor, the donor comprising a mol. or particle which can be energetically excited by an external radiation source and which is fluorescence enabled and the acceptor comprising a mol. or particle which can be excited by energy transfer via the donor with partial or complete quenching of the donor fluorescence, and the donor and/or acceptor comprise luminescing inorg. doped nanoparticles having an expansion of ≤ 50 nm, emitting electromagnetic radiation with stokes or anti-stokes scattering after energetic excitation. Thus LaPO₄:Ce,Tb nanoparticles were synthesized; the nanoparticles were treated with ethylene glycol and sulfuric acid at 210 °C in inert gas atmospheric for 3 h. The particles were dissolved at ca. 135°C; ethylene glycol was partially evaporated and the solution was dialyzed over night against water. The surface treated nanoparticles underwent oxidation with potassium permanganate in the presence of sulfuric acid for carboxy functionalization.
- IT 119537-26-7, Calcium magnesium sulfide ((Ca,Mg)S)
(Eu-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- RN 119537-26-7 HCPLUS
- CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

- IT 12032-36-9, Magnesium sulfide
(doped with Eu, Cm, Sm or their combination; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- RN 12032-36-9 HCPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

- IC ICM B82B
- CC 9-5 (Biochemical Methods)
- Section cross-reference(s): 3, 73
- ST fluorescence resonance energy transfer luminescent inorg doped nanoparticle
- IT Peptide nucleic acids

- (affinity mols.; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Rare earth metals, uses
 (dopants; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Radionuclides, uses
 (gamma-emitters, γ -emitters; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Interleukin 2
 (human recombinant, conjugate with bromotrimethyl silane-treated LaPO₄:Eu; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Interleukin 2
 (human recombinant; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Luminescent substances
 (luminescent inorg. doped nanoparticles
 (lid-nanoparticles); resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Antibodies and Immunoglobulins
 (monoclonal, labeled, to β -hCG, labeled with LaPO₄:Ce,Tb nanoparticles via undecanoic derivative spacer; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Antibodies and Immunoglobulins
 (monoclonal, to β -hCG; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Rare earth metals, uses
 (phosphates of, mixts. of lanthanide phosphates, doped with Ce and Tb; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Carboxyl group
 (product of ethylene glycol oxidation on LaPO₄:Ce,Tb nanoparticle surface; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Bile
 Blood analysis
 Body fluid
 Cerebrospinal fluid
 Conducting polymers
 Dopants
 Doping
 Feces
 Fluorescence resonance energy transfer
 Fluorometry
 IR sources
 Immunoassay
 Microarray technology
 Mycobacterium tuberculosis
 Nanoparticles
 PCR (polymerase chain reaction)
 Particle size
 Resonance energy transfer
 Sputum
 UV sources
 Urine analysis
 (resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT Antibodies and Immunoglobulins

- Enzymes, analysis
 (resonance energy transfer assays based on luminescent
 inorg. doped nanoparticles)
- IT DNA
 Proteins
 (resonance energy transfer assays based on luminescent
 inorg. doped nanoparticles)
- IT Antigens
 (resonance energy transfer assays based on luminescent
 inorg. doped nanoparticles)
- IT Antibodies and Immunoglobulins
 (to hIL-2R α chain, conjugated with Alexa fluor 680;
 resonance energy transfer assays based on luminescent
 inorg. doped nanoparticles)
- IT Antibodies and Immunoglobulins
 (to hIL-2R α chain; resonance energy transfer assays based
 on luminescent inorg. doped nanoparticles)
- IT 82992-94-7, Calcium strontium sulfide ((Ca,Sr)S)
 (Bi-doped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 75529-26-9, Gadolinium magnesium borate (GdMgB5O10)
 (Ce, Tb-codoped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 35361-71-8, Lithium strontium hexafluoroaluminate
 (LiSrAlF₆) 35362-46-0, Calcium lithium
 hexafluoroaluminate (CaLiAlF₆)
 (Ce-doped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 12024-21-4, Gallium oxide
 (Dy-doped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 116551-27-0, Silicon oxide(SiO_x)
 (Er, Al-codoped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 12031-63-9, Lithium niobium oxide (LiNbO₃)
 (Er-doped or Nd, Yb-codoped; resonance energy transfer assays
 based on luminescent inorg. doped nanoparticles)
- IT 10377-51-2, Lithium iodide (LiI) 31387-71-0, Barium ytterbium
 fluoride (BaYbF₈) 119537-26-7, Calcium magnesium
 sulfide ((Ca,Mg)S)
 (Eu-doped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 7783-40-6, Magnesium fluoride
 (Mn or lanthanide-doped; resonance energy transfer assays based
 on luminescent inorg. doped nanoparticles)
- IT 1306-23-6, Cadmium sulfide, uses 1343-88-0, Magnesium silicate
 7779-90-0, Zinc phosphate (Zn₃(PO₄)₂) 12007-60-2, Lithium borate
 (Li₂B4O₇) 12159-91-0, Germanium magnesium fluoride oxide
 (Ge₂Mg₈F₂₀11) 12255-72-0, Magnesium arsenate oxide
 (Mg₆(AsO₄)₂₀3) 126344-47-6, Magnesium zinc fluoride ((Mg,Zn)F₂)
 371759-78-3, Cadmium borate oxide (Cd(BO₃)O) 403818-18-8,
 Beryllium zinc sulfate ((Be,Zn)(SO₄)₂)
 (Mn-doped; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 13709-38-1, Lanthanum fluoride
 (Nd, Ce-codoped or Yb, Er, Tm-codoped; resonance energy
 transfer assays based on luminescent inorg. doped
 nanoparticles)
- IT 200212-20-0, Barium magnesium zinc oxide silicate
 ((Ba,Mg,Zn)O(SiO₃)₂)

- (Pb-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 26916-94-9, Lithium lutetium tetrafluoride (LiLuF₄)
(Pr, Tm, Er, or Ce; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 12031-43-5, Lanthanum oxide sulfide (La₂O₂S) 13875-40-6,
Lanthanum bromide oxide (LaOBr)
(Tb-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 13466-21-2, Barium phosphate (Ba₂P₂O₇)
(Ti-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 7789-17-5, Cesium iodide (CsI)
(Tl or Na-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 7681-82-5, Sodium iodide (NaI), uses
(Tl-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 14118-26-4, Sodium lanthanum fluoride (NaLaF₄) 14118-34-4,
Sodium yttrium fluoride (NaYF₄) 15640-94-5, Sodium gadolinium fluoride (NaGdF₄) 26874-36-2, Barium yttrium fluoride (BaYF₅)
(Yb, Er-codoped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 64987-85-5
(activation of LaPO₄:Ce,Tb nanoparticles with undecanoic derivative spacer; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 371759-79-4, Aluminum calcium oxide silicate
(Al₂Ca₂O(SiO₃)₂)
(ce-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 150927-51-8, Aluminum cerium magnesium terbium oxide
(Al₁₁Ce_{0.65}Mg_{0.35}Tb_{0.35}O₁₉) 186956-28-5, Aluminum magnesium oxide (Al₁₁MgO₁₉)
(codoped with Ce and Tb; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 371759-81-8, Aluminum yttrium borate oxide
(Al₃Y(BO₃)₃O₃)
(codoped with Nd and Yb; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 10101-39-0, Calcium silicate (CaSiO₃)
(codoped with Pb and Mn or doped with a lanthanide; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 69142-81-0, Gadolinium strontium silicate (Gd₂Sr₃Si₆O₁₈)
(codoped with Pb and Mn; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 12003-86-0, Yttrium aluminate (YAlO₃)
(codoped with Pr, Tm, Er, and Ce; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 75535-31-8, Calcium chloride fluoride phosphate (Ca₅(Cl,F)(PO₄)₃)
(codoped with Sb and Mn; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 13573-11-0, Magnesium tungstate (MgWO₄)
(codoped with Sm or Pb; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)
- IT 13759-29-0, Yttrium oxychloride (YOCl)
(codoped with Yb and Er; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)

- IT 13566-12-6, Yttrium vanadate (YVO₄)
 (codoped with a lanthanide and In or doped with Eu, Sm or Dy;
 resonance energy transfer assays based on luminescent
 inorg. doped nanoparticles)
- IT 7429-90-5, Aluminum, uses 7429-91-6, Dysprosium, uses
 7439-92-1, Lead, uses 7439-96-5, Manganese, uses 7440-00-8,
 Neodymium, uses 7440-02-0, Nickel, uses 7440-10-0,
 Praseodymium, uses 7440-19-9, Samarium, uses 7440-22-4,
 Silver, uses 7440-27-9, Terbium, uses 7440-30-4, Thulium, uses
 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-39-3,
 Barium, uses 7440-45-1, Cerium, uses 7440-50-8, Copper, uses
 7440-52-0, Erbium, uses 7440-53-1, Europium, uses 7440-54-2,
 Gadolinium, uses 7440-55-3, Gallium, uses 7440-64-4,
 Ytterbium, uses 7440-70-2, Calcium, uses 13708-63-9, Terbium
 fluoride 13765-25-8, Europium fluoride
 (dopant; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 7790-75-2, Calcium tungstate (CaWO₄)
 (doped Pb or Sm; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 13597-65-4, Zinc silicate (Zn₂SiO₄)
 (doped with As and/or Mn; resonance energy transfer assays
 based on luminescent inorg. doped nanoparticles)
- IT 145564-56-3, Calcium magnesium silicate ((Ca,Mg)(SiO₃))
 (doped with Ce or Ti; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 1314-96-1, Strontium sulfide
 (doped with Ce, Sm, Eu, Cu, Ag or their combinations; resonance
 energy transfer assays based on luminescent inorg.
 doped nanoparticles)
- IT 12442-27-2, Cadmium zinc sulfide ((Cd,Zn)S)
 (doped with Cu, Al, Ag, or Ni; resonance energy transfer assays
 based on luminescent inorg. doped nanoparticles)
- IT 7631-86-9, Silicon oxide (SiO₂), uses
 (doped with Dy or Al; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 13778-59-1, Lanthanum phosphate
 (doped with Eu or Ce, codoped with Ce, Tb or Ce, Dy or Ce, Nd;
 resonance energy transfer assays based on luminescent
 inorg. doped nanoparticles)
- IT 13718-55-3, Barium fluoride chloride (BaFCl)
 (doped with Eu or Sm; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 12027-88-2, Yttrium silicate (Y₂SiO₅)
 (doped with Eu or another a lanthanide; resonance energy
 transfer assays based on luminescent inorg. doped
 nanoparticles)
- IT 12340-04-4, Yttrium oxide sulfide (Y₂O₂S)
 (doped with Eu or another lanthanide; resonance energy transfer
 assays based on luminescent inorg. doped
 nanoparticles)
- IT 12032-36-9, Magnesium sulfide
 (doped with Eu, Cm, Sm or their combination; resonance energy
 transfer assays based on luminescent inorg. doped
 nanoparticles)
- IT 1314-36-9, Yttrium oxide (Y₂O₃), uses
 (doped with Eu, Tb, or another lanthanide; resonance energy
 transfer assays based on luminescent inorg. doped
 nanoparticles)
- IT 1344-28-1, Aluminum oxide, uses 7446-28-8

- 12254-04-5, Aluminum barium magnesium oxide
 (Al₁₀BaMgO₁₇) 12267-71-9, Boron strontium oxide (B₆SrO₁₀)
 13568-56-4, Lutetium vanadate (LuVO₄) 13628-52-9, Gadolinium
 vanadate (GdVO₄) 21669-04-5, Barium bromide fluoride (BaBrF)
 55134-50-4, Barium magnesium aluminate (BaMg₂Al₁₆O₂₇)
 71012-47-0, Aluminum barium magnesium oxide
 (Al₁₄BaMgO₂₃) 76125-60-5, Strontium aluminate
 (Sr₄Al₁₄O₂₅) 115968-61-1, Vanadium yttrium oxide phosphate
 (V_{0.1}Y_{0.9}O₄) 0-1 124676-67-1, Gadolinium yttrium borate
 ((Gd,Y)(BO₃)) 230313-54-9, Gallium yttrium borate ((Ga,Y)(BO₃))
 350480-93-2, Magnesium strontium metaphosphate oxide
 ((Mg,Sr)₂(PO₃)₂O) 371759-66-9, Aluminum barium
 magnesium oxide (Al₂BaMgO₃) 371759-80-7
 (doped with Eu; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 7789-24-4, Lithium fluoride, uses
 (doped with Mg, Ti, Na or their combination; resonance energy
 transfer assays based on luminescent inorg. doped
 nanoparticles)
- IT 7789-75-5, Calcium fluoride, uses
 (doped with Mn or Dy; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 28042-61-7, Potassium magnesium fluoride (KMgF₃)
 (doped with Mn; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 12143-49-6, Yttrium tantalate (YTaO₄)
 (doped with Nb; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 13968-67-7, Barium silicate (BaSi₂O₅)
 (doped with Pb; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 25617-97-4, Gallium nitride
 (doped with Pr, Eu, Er, or Tm; resonance energy transfer assays
 based on luminescent inorg. doped nanoparticles)
- IT 33846-79-6, Barium yttrium fluoride (BaY₂F₈)
 (doped with Pr, Tm, Er, or Ce; resonance energy transfer assays
 based on luminescent inorg. doped nanoparticles)
- IT 122656-71-7, Barium bromide chloride fluoride (BaBr_{0.5}Cl_{0.5}F)
 (doped with Sm; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 13812-81-2, Strontium phosphate (Sr₂P₂O₇)
 (doped with Sn or Eu; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 106804-21-1, Magnesium strontium phosphate ((Mg,Sr)₃(PO₄)₂)
 (doped with Sn; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 1314-98-3, Zinc sulfide, uses
 (doped with Tb, TbF₃, EuF₃, Mn, Ag, Eu, Cu, or another
 lanthanides; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 12339-07-0, Gadolinium oxide sulfide (Gd₂O₂S) 371759-82-9,
 Aluminum gallium yttrium oxide (Al₃Ga₂Y₂O₁₂)
 (doped with Tb; resonance energy transfer assays based on
 luminescent inorg. doped nanoparticles)
- IT 13709-49-4, Yttrium fluoride
 (doped with Yb and Er or a lanthanide; resonance energy
 transfer assays based on luminescent inorg. doped
 nanoparticles)
- IT 1314-13-2, Zinc oxide, uses
 (doped with Zn or with combination of Zn, Si, Ga; resonance

- energy transfer assays based on luminescent inorg.
doped nanoparticles)
- IT 12592-70-0, Strontium gallium sulfide (SrGa₂S₄)
(doped with a lanthanide and/or Pb; resonance energy transfer
assays based on luminescent inorg. doped
nanoparticles)
- IT 20548-54-3, Calcium sulfide
(doped with a lanthanide or Bi; resonance energy transfer
assays based on luminescent inorg. doped
nanoparticles)
- IT 7778-18-9, Calcium sulfate
(doped with a lanthanide or Mn; resonance energy transfer
assays based on luminescent inorg. doped
nanoparticles)
- IT 12005-21-9, Aluminum yttrium oxide (Al₅Y₃O₁₂)
39345-89-6, Yttrium lithium fluoride
(doped with a lanthanide; resonance energy transfer assays
based on luminescent inorg. doped nanoparticles)
- IT 107-21-1, Ethylene glycol, reactions
(for surface treatment of LaPO₄:Ce,Tb nanoparticles; resonance
energy transfer assays based on luminescent inorg.
doped nanoparticles)
- IT 1305-78-8, Calcium oxide, uses
(lanthanide-doped; resonance energy transfer assays based on
luminescent inorg. doped nanoparticles)
- IT 20830-75-5, Digoxin
(resonance energy transfer assays based on luminescent
inorg. doped nanoparticles)
- IT 190598-57-3DP, conjugate with LaPO₄:Ce,Tb nanoparticles via
undecanoic derivative spacer 422309-67-9DP, Alexa fluor 680,
conjugated with anti-HIL-2R α chain antibody
(resonance energy transfer assays based on luminescent
inorg. doped nanoparticles)
- IT 12233-56-6, Bismuth germanium oxide (Bi₄Ge₃O₁₂) 144419-68-1,
Aluminum barium cerium magnesium oxide (Al₁₁(Ba,Mg)CeO₁₉)
(resonance energy transfer assays based on luminescent
inorg. doped nanoparticles)
- IT 7440-06-4, Platinum, uses 50926-11-9, ITO
(resonance energy transfer assays based on luminescent
inorg. doped nanoparticles)
- IT 7300-34-7 190598-57-3 422309-67-9, Alexa fluor 680
524934-34-7 524983-29-7
(resonance energy transfer assays based on luminescent
inorg. doped nanoparticles)
- IT 2857-97-8, Bromotrimethyl silane
(silanization of LaPO₄:Ce,Tb and LaPO₄:Eu nanoparticles;
resonance energy transfer assays based on luminescent
inorg. doped nanoparticles)
- IT 524934-34-7DP, conjugate with bromotrimethyl silane-treated
LaPO₄:Ce,Tb nanoparticles, and binding to biotin, oligonucleotide
or antibody
(spacer; resonance energy transfer assays based on
luminescent inorg. doped nanoparticles)
- IT 526360-24-7 526360-25-8
(unclaimed sequence; resonance energy transfer assays based on
luminescent inorg. doped nanoparticles)

L37 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:185255 HCAPLUS

DOCUMENT NUMBER: 136:254311

TITLE: Doped nanoparticles
 INVENTOR(S): Haubold, Stephan; Haase, Marcus; Riwotzky,
 Carsten; Weller, Horst; Meysamy, Heike;
 Ibarra, Fernando
 PATENT ASSIGNEE(S): Nanosolutions G.m.b.H., Germany
 SOURCE: PCT Int. Appl., 80 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002020695	A1	20020314	WO 2000-DE3130	2000 0908
				W: BY, CN, IL, JP, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
DE 10111321	A1	20020523	DE 2001-10111321	2001 0308
CA 2388094	AA	20020314	CA 2001-2388094	2001 0907
WO 2002020696	A1	20020314	WO 2001-DE3433	2001 0907
				W: AU, CA, CN, IL, JP, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR
AU 2002010036	A5	20020322	AU 2002-10036	2001 0907
EP 1232226	A1	20020821	EP 2001-976022	2001 0907
				R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR
JP 2004508215	T2	20040318	JP 2002-525704	2001 0907
US 2003032192	A1	20030213	US 2002-129530	2002 0626
PRIORITY APPLN. INFO.:			WO 2000-DE3130	W 2000 0908
			WO 2001-DE3433	W 2001 0907

AB Methods for producing fluorescent nanoparticles comprising doped hosts are described which entail carrying out the liquid-phase synthesis of the nanoparticles in an organic solvent. Synthesis in organic solvents allows substantially improved yields as compared to conventional synthesis in water. Owing to the narrower size

distribution of the nanoparticles produced, size separation is not required. Nanoparticles synthesized using the methods are also described, as are their use in marking articles and articles marked using them. Apparatus and methods are also described for detecting the presence of the nanoparticles using fluorescence emission from them.

- IT 12032-36-9P, Magnesium sulfide 119537-26-7P,
 Calcium magnesium sulfide ((Ca,Mg)S)
 (liquid-phase synthesis of fluorescent doped nanoparticles in
 organic solvents and the nanoparticles and marking and detection
 methods and apparatus using them)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg == S

- RN 119537-26-7 HCAPLUS
 CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

- IC ICM C09K011-08
 ICS G01N021-91; G01N021-76; G07D007-00; C09D011-00; A61B005-117
 CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 74, 78
- IT Alkali metal halides, uses

Aluminates

- Arsenates
- Borates
- Halides
- Molybdates
- Nitrides
- Oxides (inorganic), uses
- Phosphates, uses
- Selenides
- Silicates, uses
- Sulfates, uses
- Sulfides, uses

(liquid-phase synthesis of fluorescent doped nanoparticles in
 organic solvents and the nanoparticles and marking and detection
 methods and apparatus using them)

- IT 7429-90-5P, Aluminum, uses 7429-91-6P, Dysprosium,
 uses 7439-92-1P, Lead, uses 7439-95-4P, Magnesium, uses
 7439-96-5P, Manganese, uses 7440-00-8P, Neodymium, uses
 7440-02-0P, Nickel, uses 7440-03-1P, Niobium, uses 7440-10-0P,
 Praseodymium, uses 7440-19-9P, Samarium, uses 7440-21-3P,
 Silicon, uses 7440-22-4P, Silver, uses 7440-23-5P, Sodium,
 uses 7440-27-9P, Terbium, uses 7440-28-0P, Thallium, uses
 7440-30-4P, Thulium, uses 7440-32-6P, Titanium, uses
 7440-36-0P, Antimony, uses 7440-38-2P, Arsenic, uses
 7440-45-1P, Cerium, uses 7440-47-3P, Chromium, uses
 7440-48-4P, Cobalt, uses 7440-50-8P, Copper, uses 7440-52-0P,

Erbium, uses 7440-53-1P, Europium, uses 7440-55-3P, Gallium, uses 7440-64-4P, Ytterbium, uses 7440-66-6P, Zinc, uses 7440-69-9P, Bismuth, uses 7440-74-6P, Indium, uses 13708-63-9P, Terbium trifluoride 13765-25-8P, Europium trifluoride 16910-54-6P, Europium +2, uses (liquid-phase synthesis of fluorescent doped nanoparticles in organic solvents and the nanoparticles and marking and detection methods and apparatus using them)

IT 1306-23-6P, Cadmium sulfide, uses 1314-13-2P, Zinc oxide, uses 1314-36-9P, Yttria, uses 1314-96-1P, Strontium sulfide 1314-98-3P, Zinc sulfide, uses 1344-28-1P, **Alumina**, uses 7631-86-9P, Silica, uses 7681-82-5P, Sodium iodide, uses 7758-87-4P, Calcium phosphate ($\text{Ca}_3(\text{PO}_4)_2$) 7778-18-9P, Calcium sulfate (CaSO_4) 7779-90-0P, Zinc phosphate 7783-40-6P, Magnesium fluoride 7789-17-5P, Cesium iodide 7789-24-4P, Lithium fluoride, uses 7789-75-5P, Calcium fluoride, uses 7790-75-2P, Calcium tungstate (CaWO_4) 10101-39-0P, Calcium silicate (CaSiO_3) 10377-51-2P, Lithium iodide 12003-86-0P, **Yttrium aluminate** (YAlO_3) 12004-04-5P, Barium aluminate (BaAl_2O_4) 12005-21-9P, YAG 12007-60-2P, Lithium borate ($\text{Li}_2\text{B}_4\text{O}_7$) 12024-21-4P, Gallium oxide 12024-36-1P, Gadolinium gallium oxide ($\text{Gd}_3\text{Ga}_5\text{O}_12$) 12027-88-2P, **Yttrium silicate** (Y_2SiO_5) 12031-43-5P, Lanthanum oxide sulfide ($\text{La}_2\text{O}_2\text{S}$) 12031-63-9P, Lithium niobate 12032-36-9P, Magnesium sulfide 12143-49-6P, Yttrium tantalate (YTaO_4) 12159-91-0P, Germanium magnesium fluoride oxide ($\text{GeMg}_4\text{FO}_{5.5}$) 12233-56-6P, Bismuth germanate ($\text{Bi}_4\text{Ge}_3\text{O}_12$) 12254-04-5P, Barium magnesium aluminate ($\text{BaMgAl}_10\text{O}_17$) 12255-72-0P, Magnesium arsenate oxide ($\text{Mg}_6(\text{AsO}_4)_2\text{O}_4$) 12339-07-0P, Gadolinium oxide sulfide ($\text{Gd}_2\text{O}_2\text{S}$) 12340-04-4P, Yttrium oxide sulfide ($\text{Y}_2\text{O}_2\text{S}$) 12442-27-2P, Cadmium zinc sulfide ((Cd, Zn)S) 12505-97-4P, Boron strontium fluoride oxide ($\text{B}_12\text{Sr}_3\text{F}_2\text{O}_{20}$) 12592-70-0P, Gallium strontium sulfide (Ga_2SrS_4) 13466-21-2P, Barium phosphate ($\text{Ba}_2\text{P}_2\text{O}_7$) 13566-12-6P, Yttrium vanadate (YVO_4) 13568-56-4P, Lutetium vanadate (LuVO_4) 13573-11-0P, Magnesium tungstate (MgWO_4) 13597-55-2P, Strontium silicate (Sr_2SiO_4) 13597-65-4P, Zinc silicate (Zn_2SiO_4) 13628-52-9P, Gadolinium vanadate (GdVO_4) 13709-38-1P, Lanthanum fluoride 13709-49-4P, Yttrium trifluoride 13718-55-3P, Barium chloride fluoride (BaCl_2) 13759-29-0P, Yttrium oxychloride (YOCl) 13776-74-4P, Magnesium silicate (MgSiO_3) 13778-59-1P, Lanthanum phosphate 13812-81-2P, Strontium phosphate ($\text{Sr}_2\text{P}_2\text{O}_7$) 13813-76-8P, **Yttrium aluminum borate** ($\text{YAl}_3(\text{BO}_3)_4$) 13875-40-6P, Lanthanum oxide bromide (LaOBr) 13968-67-7P, Barium silicate (BaSi_2O_5) 14118-26-4P, Sodium lanthanum fluoride (NaLaF_4) 14118-34-4P, Sodium yttrium fluoride (NaYF_4) 15640-94-5P, Sodium gadolinium fluoride (NaGdF_4) 20548-54-3P, Calcium sulfide 20571-45-3P, Cadmium borate (CdB_2O_4) 21669-04-5P, Barium bromide fluoride (BaBr_2) 23108-36-3P, Yttrium lithium fluoride (YLiF_4) 25617-97-4P, Gallium nitride 26874-36-2P, Barium yttrium fluoride (BaYF_5) 26916-94-9P, Lithium lutetium fluoride (LiLuF_4) 28042-61-7P, Potassium magnesium fluoride (KMg_2F_3) 31387-71-0P, Barium ytterbium fluoride (BaYb_2F_8) 33846-79-6P, Barium yttrium fluoride (BaY_2F_8) 35361-71-8P, Lithium strontium aluminum fluoride (LiSrAlF_6) 35362-46-0P, Lithium calcium aluminum fluoride (LiCaAlF_6) 37276-56-5P, Calcium strontium chloride phosphate ($\text{CaSr}_9\text{Cl}_2(\text{PO}_4)_6$) 55134-50-4P, Barium magnesium aluminate ($\text{BaMg}_2\text{Al}_16\text{O}_{27}$) 69142-81-0P 71012-47-0P, Barium magnesium aluminate ($\text{BaMgAl}_14\text{O}_{23}$) 75535-31-8P, Calcium chloride fluoride phosphate

(Ca₅(Cl,F)(PO₄)₃) 76125-60-5P, Strontium aluminate
 (Sr₄Al₁₄O₂₅) 82992-94-7P, Calcium strontium sulfide
 (Ca_{0.1}Sr_{0.1}S) 104663-37-8P, Gadolinium magnesium borate
 (GdMgB₅O₁₀) 106804-21-1P, Strontium magnesium phosphate
 (Sr_{0.3}Mg_{0.3}(PO₄)₂) 115968-61-1P, Vanadium yttrium oxide
 phosphate (V_{0.1}Y_{0.9}(PO₄)_{0.1}) 119537-26-7P, Calcium
 magnesium sulfide ((Ca,Mg)S) 122656-71-7P, Barium bromide
 chloride fluoride (BaBr_{0.5}Cl_{0.5}F) 124676-67-1P, Yttrium
 gadolinium borate (Y_{0.1}Gd_{0.1}B₃O₃) 126344-47-6P, Magnesium zinc
 fluoride (Mg_{0.1}Zn_{0.1}F₂) 144419-68-1P, Aluminum barium
 cerium magnesium oxide (Al₁₁(Ba,Mg)CeO₁₉) 145564-56-3P, Calcium
 magnesium silicate (Ca_{0.1}Mg_{0.1}SiO₃) 150927-51-8P,
Aluminum cerium magnesium terbium oxide
 (Al₁₁CeO_{0.65}MgTbO_{0.35}O₁₉) 176635-80-6P, Magnesium strontium
 (diphosphate) ((Mg,Sr)₂(P₂O₇)) 186956-28-5P, **Aluminum**
 magnesium oxide (Al₁₁MgO₁₉) 225796-98-5P, **Aluminum**
 barium magnesium oxide (Al₂(Ba,Mg)O₄) 230313-54-9P, Yttrium
 gallium borate (Y_{0.1}Ga_{0.1}B₃O₃) 371759-79-4P, **Aluminum**
 calcium oxide silicate (Al₂Ca₂O(SiO₃)₂) 371759-82-9P,
Aluminum gallium yttrium oxide (Al₃Ga₂Y₂O₁₂)
 403818-15-5P, Barium magnesium zinc silicate ((Ba,Mg,Zn)₃(Si₂O₇))
 403818-18-8P, Beryllium zinc sulfate ((Be,Zn)(SO₄))
 403818-21-3P, Barium calcium strontium phosphate
 ((Ba,Ca,Sr)₃(PO₄)₂) 403818-24-6P, Europium gadolinium vanadium
 oxide (Eu_{0.05}Gd_{0.95}VO₄) 403818-25-7P, Europium tungsten yttrium
 oxide (Eu_{0.2}W₃Y_{1.8}O₁₂) 403818-27-9P, Gadolinium tantalum terbium
 oxide (Gd_{0.95}Ta_{0.05}O₄)
 (liquid-phase synthesis of fluorescent doped nanoparticles in
 organic solvents and the nanoparticles and marking and detection
 methods and apparatus using them)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L37 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:814004 HCAPLUS
 DOCUMENT NUMBER: 135:341136
 TITLE: Preparation of luminescent-doped
 inorganic nanoparticles and usage as labels
 for biomolecule probes
 INVENTOR(S): Hoheisel, Werner; Petry, Christoph; Bohmann,
 Kerstin; Haase, Markus; Riwotzki, Karsten
 PATENT ASSIGNEE(S): Bayer A.-G., Germany
 SOURCE: Ger. Offen., 12 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10106643	A1	20011108	DE 2001-10106643	2001 0212
CA 2407899	AA	20011115	CA 2001-2407899	2001 0423
WO 2001086299	A2	20011115	WO 2001-EP4545	

2001
0423

WO 2001086299	A3	20020523	
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1282824	A2	20030212	EP 2001-931636
2001 0423			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2003532898	T2	20031105	JP 2001-583192
2001 0423			
US 2004014060	A1	20040122	US 2003-275355
2003 0414			
PRIORITY APPLN. INFO.:		DE 2000-10021674	A1
2000 0505			
DE 2001-10106643 A 2001 0212			
WO 2001-EP4545 W 2001 0423			

- AB The invention concerns luminescent-doped inorg. nanoparticles that are used as labels for affinity mols. e.g. nucleic acids, antibodies, proteins, etc.; affinity mols. are directly attached to the nanoparticles or via linker groups, e.g. thiols, amines, imidazoles, mol. self-assemblies, etc. Thus europium-doped phosphoric acid, lanthanum(3+) salt (1:1) was prepared by a previously described wet chemical method; the obtained milky dispersion was centrifuged, dialyzed and dried to obtain the desired particle size. The LaPO₄:Eu nanoparticles were coated with silica using a basic sodium water glass solution; separated by ethanol precipitation, centrifugation, ultrasound dispersion, decanting and drying. The silica coated nanoparticles were amine-activated with 3-aminopropyltriethoxysilane and treated with sulfosuccinimidyl 4-(N-maleimidomethyl)cyclohexane-1-carboxylate (sulfo-SMCC) crosslinker. Antibodies to α -actin were thiol-activated in a 2-iminothiolane solution and incubated with the treated luminescent-doped inorg. nanoparticles; the obtained luminescent probes were used to visualize actin filaments in rabbit muscles by confocal laser scanning microscopy.
- IT 119537-26-7, Calcium magnesium sulfide ((Ca,Mg)S)
(Eu-doped; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- RN 119537-26-7 HCPLUS

CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

IT 12032-36-9, Magnesium sulfide (MgS)
 (doped with Eu, Ce, Sm or combination; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

RN 12032-36-9, HCAPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM G01N033-52

ICS G01N033-58; C12Q001-00; C12Q001-68

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 73

ST luminescent doped inorg nanoparticle biomol probe
 fluorescence microscopy

IT Ketones, uses
 (1,2-diketones; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Luminescence
 (UV; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Surfactants
 (anionic; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Heterocyclic compounds
 (azolides; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Surfactants
 (cationic; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Rare earth metals, uses
 (dopant; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Phosphates, uses
 (doped with Ce,Tb,of a lanthanide or their mixture; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Imidic acids
 (esters; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Group IIIA element compounds
 (gallates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Radioluminescence
 (gamma-ray; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT Group IVA element compounds
 (germanates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

- IT Phosphates, uses
 - (halide; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Immunoassay
 - (luminescence; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Group VB element compounds
 - (niobates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Heterocyclic compounds
 - (nitrogen, five-membered, imidazoles; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Sulfides, uses
 - (oxy; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Halides
 - (phosphates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Amines, reactions
 - (polyamines, nonpolymeric; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Carboxylic acids, reactions
 - (polycarboxylic; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Animal tissue
 - Biochemical molecules
 - Blood analysis
 - Blood plasma
 - Blood serum
 - Cathodoluminescence**
 - Cerebrospinal fluid
 - Dopants
 - Fluorescence microscopy
 - Fluorescent substances
 - Fluorometry
 - Immobilization, biochemical
 - Light sources
 - Luminescence spectroscopy**
 - Luminescent substances
 - Nanoparticles
 - Nucleic acid hybridization
 - Particle size
 - Plant tissue
 - Plasmids
 - Self-assembly
 - Sputum
 - Sulphydryl group
 - Urine analysis
 - X-ray luminescence**
 - (preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Alkali metal halides, uses
 - Anhydrides
 - Arsenates
 - Aryl halides
 - Borates
 - Haptens
 - Isothiocyanates

- Molybdates
- Oxides (inorganic), uses
- Peptides, uses
- Phosphates, uses
- Polysaccharides, uses
- Selenides
- Silicates, uses
- Sulfates, uses
- Sulfides, uses
- Sulfonyl halides
 - (preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Antibodies
 - Nucleic acids
 - Probes (nucleic acid)
 - Proteins, general, uses
 - Thiols (organic), uses
 - (preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Amines, reactions
 - Polysulfones, reactions
 - Thioethers
 - (preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Diazonium compounds
 - (salts; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Selenides
 - (sulfo; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Group VB element compounds
 - (tantalates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Antibodies
 - (to α -actin; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Group VIB element compounds
 - (tungstates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Carbonyl compounds (organic), uses
 - (unsatd.; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Group VB element compounds
 - (vanadates; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Surfactants
 - (zwitterionic; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT Actins
 - (α -; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 1314-98-3, Zinc sulfide (ZnS), uses
 - (Ag, Al, Cu, Mn, Tb, TbF₃, Eu, EuF₃, lanthanide doped; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 82992-94-7, Calcium strontium sulfide ((Ca,Sr)S)
 - (Bi-doped; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 145564-56-3, Calcium magnesium silicate ((Ca,Mg)(SiO₃))
 - (Ce or Ti doped; preparation of luminescent-doped inorg.

- nanoparticles and usage as labels for biomol. probes)
- IT 150927-51-8, **Aluminum cerium magnesium terbium oxide**
(Al₁₁CeO_{6.65}MgTbO_{3.5019}) 186956-28-5, **Aluminum**
magnesium oxide (Al₁₁MgO₁₉)
(Ce, Tb doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 35361-71-8, **Aluminum lithium strontium fluoride**
(AlLiSrF₆) 35362-46-0 371759-79-4, **Aluminum calcium**
oxide silicate (Al₂Ca₂₀(SiO₃)₂)
(Ce-doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 12442-27-2, Cadmium zinc sulfide ((Cd,Zn)S)
(Cu, Al, Ag, Ni doped; preparation of **luminescent-doped**
inorg. nanoparticles and usage as labels for biomol. probes)
- IT 12024-21-4, Gallium oxide (Ga₂O₃)
(Dy-doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 21669-04-5, Barium bromide fluoride (BaBrF) 122656-71-7, Barium
bromide chloride fluoride (BaBr_{0.5}Cl_{0.5}F)
(Eu doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 13718-55-3, Barium chloride fluoride (BaClF)
(Eu or Sm doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 1344-28-1, **Alumina**, uses 10377-51-2, Lithium iodide
(LiI) 12254-04-5, **Aluminum barium magnesium oxide**
(Al₁₀BaMgO₁₇) 12505-97-4, Boron strontium fluoride oxide
(B₁₂Sr₃F₂₀O₂₀) 37276-56-5, Calcium strontium chloride phosphate
(CaSr₉Cl₂(PO₄)₆) 55134-50-4, **Aluminum barium magnesium**
oxide (Al₁₆BaMg₂O₂₇) 71012-47-0, **Aluminum barium**
magnesium oxide (Al₁₄BaMgO₂₃) 115968-61-1, Vanadium yttrium
oxide phosphate (V_{0.1}Y_{0.9}O₄) 0-1 119537-26-7, Calcium
magnesium sulfide ((Ca,Mg)S) 350480-93-2, Magnesium strontium
metaphosphate oxide ((Mg,Sr)₂(PO₃)₂O) 371759-66-9,
Aluminum barium magnesium oxide (Al₂BaMgO₃) 371759-80-7
(Eu-doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 13597-65-4, Zinc silicate (Zn₂SiO₄)
(Mn or As-doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 7789-75-5, Calcium fluoride (CaF₂), uses
(Mn or Dy doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)
- IT 7778-18-9, Calcium sulfate (CaSO₄)
(Mn or lanthanide doped; preparation of **luminescent-doped**
inorg. nanoparticles and usage as labels for biomol. probes)
- IT 10101-39-0
(Mn, Pb, lanthanide doped; preparation of **luminescent**
-doped inorg. nanoparticles and usage as labels for biomol.
probes)
- IT 7779-90-0, Zinc phosphate (Zn₃(PO₄)₂) 12007-60-2, Lithium borate
(Li₂B₄O₇) 12159-91-0, Germanium magnesium fluoride oxide
(Ge₂Mg₈F₂₀11) 12255-72-0, Magnesium arsenate oxide
(Mg₆(AsO₄)₂O₃) 13776-74-4, Magnesium metasilicate (MgSiO₃)
28042-61-7, Magnesium potassium fluoride (MgKF₃) 126344-47-6,
Magnesium zinc fluoride ((Mg,Zn)F₂) 371759-74-9, Beryllium zinc
oxide sulfide (BeZn₄O₄S) 371759-78-3, Cadmium borate oxide
(Cd(BO₃)₂)
(Mn-doped; preparation of **luminescent-doped inorg.**
nanoparticles and usage as labels for biomol. probes)

- IT 1306-23-6, Cadmium sulfide, uses
 (Mn-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 12143-49-6, Tantalum yttrium oxide (TaYO₄)
 (Nb-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 7790-75-2, Calcium tungstate (CaWO₄)
 (Pb or Sm doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 13573-11-0, Magnesium tungstate (MgWO₄)
 (Pb or Sm-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 13968-67-7, Barium silicate (BaSi₂O₅) 200212-20-0, Barium
 magnesium zinc oxide silicate ((Ba,Mg,Zn)O₃(SiO₃)₂)
 (Pb-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 33846-79-6, Barium yttrium fluoride (BaY₂F₈)
 (Pr, Tm, Er, Ce doped; preparation of luminescent-doped
 inorg. nanoparticles and usage as labels for biomol. probes)
- IT 75535-31-8, Calcium chloride fluoride phosphate (Ca₅(Cl,F)(PO₄)₃)
 (Sb, Mn doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 106804-21-1, Magnesium strontium phosphate ((Mg,Sr)₃(PO₄)₂)
 (Sn-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 12031-43-5, Lanthanum oxide sulfide (La₂O₂S) 13875-40-6,
 Lanthanum bromide oxide (LaBrO)
 (Tb doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 13466-21-2, Barium pyrophosphate (Ba₂P₂O₇)
 (Ti-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 7789-17-5, Cesium iodide (CsI)
 (Tl-doped or sodium-doped; preparation of luminescent
 -doped inorg. nanoparticles and usage as labels for biomol.
 probes)
- IT 7681-82-5, Sodium iodide (NaI), uses
 (Tl-doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 1314-13-2, Zinc oxide (ZnO), uses
 (Zn, Si, Ga doped; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 7429-90-5, Aluminum, uses 7429-91-6, Dysprosium, uses
 7439-92-1, Lead, uses 7439-96-5, Manganese, uses 7440-00-8,
 Neodymium, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium,
 uses 7440-10-0, Praseodymium, uses 7440-19-9, Samarium, uses
 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-28-0,
 Thallium, uses 7440-30-4, Thulium, uses 7440-31-5, Tin, uses
 7440-32-6, Titanium, uses 7440-36-0, Antimony, uses 7440-38-2,
 Arsenic, uses 7440-45-1, Cerium, uses 7440-47-3, Chromium,
 uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses
 7440-52-0, Erbium, uses 7440-53-1, Europium, uses 7440-55-3,
 Gallium, uses 7440-64-4, Ytterbium, uses 7440-66-6, Zinc, uses
 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses
 (dopant; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 76125-60-5, Aluminum strontium oxide (Al₁₄Sr₄O₂₅)
 (doped Eu; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 75529-26-9, Gadolinium magnesium borate (GdMgB₅O₁₀)

- (doped with Ce, Tb; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 7631-86-9, Silicon dioxide, uses
(doped with Dy, Al; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 113671-38-8, Silicon oxide (SiO₂)
(doped with Er, Al; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 31387-71-0, Barium ytterbium fluoride (BaYb₂F₈)
(doped with Er; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 12027-88-2, Yttrium silicate (Y₂SiO₅) 12340-04-4, Yttrium oxide sulfide (Y₂O₂S)
(doped with Eu or other lanthanide; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 12032-36-9, Magnesium sulfide (MgS)
(doped with Eu, Ce, Sm or combination; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 13778-59-1, Lanthanum phosphate (LaPO₄)
(doped with Eu, Ce, Tb, Dy, Nd; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 13566-12-6, Vanadium yttrium oxide (VY₂O₅)
(doped with Eu, Sm, Dy, In; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 1314-36-9, Yttrium oxide (Y₂O₃), uses
(doped with Eu, Tb or other lanthanide; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 13568-56-4, Lutetium vanadium oxide (LuVO₄) 13628-52-9, Gadolinium vanadium oxide (GdVO₄) 124676-67-1, Gadolinium yttrium borate ((Gd,Y)(BO₃)) 230313-54-9, Gallium yttrium borate ((Ga,Y)(BO₃))
(doped with Eu; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 7789-24-4, Lithium fluoride (LiF), uses
(doped with Mg, Ti, Na or their combination; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 7783-40-6, Magnesium fluoride (MgF₂)
(doped with Mn or lanthanide; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 13709-38-1, Lanthanum fluoride (LaF₃)
(doped with Nd, Ce, Yb, Er, Tm; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 12031-63-9, Lithium niobate (LiNbO₃)
(doped with Nd, Yb, Er; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 371759-81-8, Aluminum yttrium borate oxide (Al₂Y(BO₃)₃O₃)
(doped with Nd, Yb; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
- IT 69142-81-0, Gadolinium strontium silicate (Gd₂Sr₃Si₆O₁₈)
(doped with Pb,Mn; preparation of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

- IT 25617-97-4, Gallium nitride (GaN)
 (doped with Pr, Eu, Er, Tm; preparation of luminescent
 -doped inorg. nanoparticles and usage as labels for biomol.
 probes)
- IT 12003-86-0, Aluminum yttrium oxide (Al₂Y₃O₁₂) 26916-94-9,
 Lithium lutetium fluoride (LiLuF₄)
 (doped with Pr, Tm, Er, Ce; preparation of luminescent
 -doped inorg. nanoparticles and usage as labels for biomol.
 probes)
- IT 1314-96-1, Strontium sulfide (SrS)
 (doped with Sm, Ce, Eu, Ag, Cu; preparation of luminescent
 -doped inorg. nanoparticles and usage as labels for biomol.
 probes)
- IT 13812-81-2, Strontium pyrophosphate (Sr₂P₂O₇)
 (doped with Sn or Eu; preparation of luminescent-doped
 inorg. nanoparticles and usage as labels for biomol. probes)
- IT 371759-82-9, Aluminum gallium yttrium oxide
 (Al₃Ga₂Y₂O₁₂)
 (doped with Tb; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 13759-29-0, Yttrium chloride oxide (YC₂O₃) 14118-26-4, Lanthanum
 sodium fluoride (LaNaF₄) 14118-34-4, Sodium yttrium fluoride
 (NaYF₄) 15640-94-5, Gadolinium sodium fluoride (GdNaF₄)
 26874-36-2, Barium yttrium fluoride (BaYF₅)
 (doped with Yb, Er; preparation of luminescent-doped
 inorg. nanoparticles and usage as labels for biomol. probes)
- IT 13709-49-4, Yttrium fluoride (YF₃)
 (doped with Yb, Er, lanthanide; preparation of luminescent
 -doped inorg. nanoparticles and usage as labels for biomol.
 probes)
- IT 12592-70-0, Gallium strontium sulfide (Ga₂SrS₄)
 (doped with lanthanide, Pb; preparation of luminescent
 -doped inorg. nanoparticles and usage as labels for biomol.
 probes)
- IT 12005-21-9, Aluminum yttrium oxide (Al₅Y₃O₁₂)
 23108-36-3, Lithium yttrium fluoride (LiYF₄)
 (doped with lanthanide; preparation of luminescent-doped
 inorg. nanoparticles and usage as labels for biomol. probes)
- IT 1305-78-8, Calcium oxide, uses
 (doped with lanthanides; preparation of luminescent-doped
 inorg. nanoparticles and usage as labels for biomol. probes)
- IT 12339-07-0, Gadolinium oxide sulfide (Gd₂O₂S)
 (doped with tb; preparation of luminescent-doped inorg.
 nanoparticles and usage as labels for biomol. probes)
- IT 20548-54-3, Calcium sulfide (CaS)
 (lanthanide or Bi doped; preparation of luminescent-doped
 inorg. nanoparticles and usage as labels for biomol. probes)
- IT 58-85-5, Biotin 503-68-4D, Diazoacetic acid, derivative 541-59-3D,
 Maleimide, derivative 661-20-1D, Isocyanate, derivative 7439-97-6D,
 Mercury, organic derivative, uses 11098-82-1, Aluminate
 12233-56-6, Bismuth germanate (Bi₄Ge₃O₁₂) 20830-75-5, Digoxin
 144419-68-1, Aluminum barium cerium magnesium oxide
 (Al₁₁(Ba,Mg)CeO₁₉)
 (preparation of luminescent-doped inorg. nanoparticles and
 usage as labels for biomol. probes)
- IT 113-00-8, Guanidine 120-72-9D, Indole, derivs. 1344-09-8,
 Water glass 6539-14-6, 2-Imino thioliolane 64987-85-5
 (preparation of luminescent-doped inorg. nanoparticles and
 usage as labels for biomol. probes)
- IT 13708-63-9, Terbium fluoride (TbF₃) 13765-25-8, Europium

fluoride (EuF₃)

(with ZnS; preparation of luminescent-doped inorg.
nanoparticles and usage as labels for biomol. probes)

IT 7440-27-9, Terbium, uses
(with mixed oxides; preparation of luminescent-doped
inorg. nanoparticles and usage as labels for biomol. probes)

L37 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:450736 HCAPLUS
DOCUMENT NUMBER: 129:101726
TITLE: Infrared-excited long-afterglow phosphore with
blue emission
INVENTOR(S): Kato, Tomoharu; Okata, Akira; Ishiwatari,
Shoji
PATENT ASSIGNEE(S): Mitsubishi Materials Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10183114	A2	19980714	JP 1996-343285	1996 1224
PRIORITY APPLN. INFO.:			JP 1996-343285	1996 1224

AB The phosphor comprises an alkaline earth sulfide containing 10-5-10-3 mol Bi and 10-5-10-3 mol Sn (per 1 mol of the sulfide) as activators. The phosphor comprises a sulfide of Ca, Sr and/or Mg containing the activators. The phosphor is useful for IR detectors. The phosphor emits blue light with high visibility in light conditions.

IT 12032-36-9, Magnesium sulfide (MgS) 209727-23-1,
Calcium magnesium sulfide (Ca0.3Mg0.7S) 209727-24-2,
Calcium magnesium sulfide (Ca0.7Mg0.3S)
(alkaline earth sulfide containing Bi and Sn as IR-excited
long-afterglow phosphore with blue emission)

RN 12032-36-9 HCAPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

RN 209727-23-1 HCAPLUS

CN Calcium magnesium sulfide (Ca0.3Mg0.7S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.3	7440-70-2
Mg	0.7	7439-95-4

RN 209727-24-2 HCAPLUS
 CN Calcium magnesium sulfide (Ca0.7Mg0.3S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.7	7440-70-2
Mg	0.3	7439-95-4

IC ICM C09K011-55
 ICS C09K011-56; G01J001-58
 CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 IT 1314-96-1, Strontium sulfide (SrS) 12032-36-9, Magnesium sulfide (MgS) 20548-54-3, Calcium sulfide (CaS) 113939-20-1, Calcium strontium sulfide (Ca0.7Sr0.3S) 113939-23-4, Calcium strontium sulfide (Ca0.3Sr0.7S) 198208-83-2, Magnesium strontium sulfide (Mg0.5Sr0.5S) 198208-84-3, Magnesium strontium sulfide (Mg0.3Sr0.7S) 198208-85-4, Magnesium strontium sulfide (Ca0.3Mg0.7S) 209727-23-1, Calcium magnesium sulfide (Ca0.3Mg0.7S) 209727-24-2, Calcium magnesium sulfide (Ca0.7Mg0.3S)
 (alkaline earth sulfide containing Bi and Sn as IR-excited long-afterglow phosphore with blue emission)

L37 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1993:591056 HCAPLUS

DOCUMENT NUMBER: 119:191056

TITLE: Synthesis and cathodoluminescence of orange-yellow- to red-emitting manganese-doped calcium magnesium sulfide (Ca_{1-x}Mg_xS) phosphors

AUTHOR(S): Collins, Brian T.; Ling, Mildred

CORPORATE SOURCE: Tubes Display Group, Thomson Consumer Electron., Lancaster, PA, 17601, USA

SOURCE: Journal of the Electrochemical Society (1993), 140(6), 1752-5

CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A complete series of single-phase Ca_{1-x}Mg_xS:Mn phosphors were synthesized by firing in an H₂S/PCl₃ atmosphere at 1200°C. The cathodoluminescence of these compds. was investigated at room temperature. The emission color varied from orange-yellow to deep red as the concentration of magnesium was increased. For composition Ca0.75Mg0.25S:Mn (0.1 a/o) a highly saturated red emission was obtained with chromaticity coordinates of x = 0.657, γ = 0.341, which are comparable to the com. red phosphor Y2O2S:Eu (x = 0.650, γ = 0.342). The quantum efficiencies of the end members of the Ca_{1-x}Mg_x:Mn series were the highest. As substitution was increased, the quantum efficiency rapidly decreased with the lowest values in the 0.25 ≤ x ≤ 0.50 range. In addition, the presence of chloride, with or without phosphide, had a deleterious effect on the emission intensity; however, the chromaticity remained unchanged. Factors influencing the manganese emission are discussed.

IT 12032-36-9, Magnesium sulfide 150402-51-0,
 Calcium magnesium sulfide (Ca0.9Mg0.1S) 150402-52-1,

Calcium magnesium sulfide ($\text{Ca}_0.75\text{Mg}_0.25\text{S}$) 150402-53-2,
 Calcium magnesium sulfide ($\text{Ca}_0.5\text{Mg}_0.5\text{S}$) 150402-54-3,
 Calcium magnesium sulfide ($\text{Ca}_0.4\text{Mg}_0.6\text{S}$)
 (cathodoluminescence of manganese-containing)

RN 12032-36-9 HCAPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

$\text{Mg}=\text{S}$

RN 150402-51-0 HCAPLUS
 CN Calcium magnesium sulfide ($\text{Ca}_0.9\text{Mg}_0.1\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.9	7440-70-2
Mg	0.1	7439-95-4

RN 150402-52-1 HCAPLUS
 CN Calcium magnesium sulfide ($\text{Ca}_0.75\text{Mg}_0.25\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.75	7440-70-2
Mg	0.25	7439-95-4

RN 150402-53-2 HCAPLUS
 CN Calcium magnesium sulfide ($\text{Ca}_0.5\text{Mg}_0.5\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.5	7440-70-2
Mg	0.5	7439-95-4

RN 150402-54-3 HCAPLUS
 CN Calcium magnesium sulfide ($\text{Ca}_0.4\text{Mg}_0.6\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.4	7440-70-2
Mg	0.6	7439-95-4

IT 119537-26-7, Calcium magnesium sulfide ((Ca, Mg) S)
 (cathodoluminescence phosphorous from
 manganese-containing)

RN 119537-26-7 HCAPLUS
 CN Calcium magnesium sulfide ((Ca, Mg) S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 ST cathodoluminescence phosphor manganese calcium magnesium sulfide
 IT Luminescence, cathodo-
 (of manganese-doped calcium magnesium sulfide)
 IT 12032-36-9, Magnesium sulfide 20548-54-3, Calcium sulfide 150402-51-0, Calcium magnesium sulfide (Ca0.9Mg0.1S) 150402-52-1, Calcium magnesium sulfide (Ca0.75Mg0.25S) 150402-53-2, Calcium magnesium sulfide (Ca0.5Mg0.5S) 150402-54-3, Calcium magnesium sulfide (Ca0.4Mg0.6S)
 (cathodoluminescence of manganese-containing)
 IT 119537-26-7, Calcium magnesium sulfide ((Ca,Mg)S)
 (cathodoluminescence phosphorous from manganese-containing)
 IT 7439-96-5, Manganese, properties
 (cathodoluminescence phosphorus from calcium magnesium sulfide with)

L37 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1992:30990 HCAPLUS
 DOCUMENT NUMBER: 116:30990
 TITLE: Light-emitting thin films and
 thin-film electroluminescent device
 INVENTOR(S): Okajima, Michio; Tohda, Takao
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd.,
 Japan

SOURCE: Eur. Pat. Appl., 11 pp.
 CODEN: EPXXDW

DOCUMENT TYPE: Patent
 LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 446746	A2	19910918	EP 1991-103189	1991 0304
EP 446746	A3	19920304		
EP 446746	B1	19960313		
R: DE, FR, GB JP 03266393	A2	19911127	JP 1990-63152	1990 0314
JP 03280395	A2	19911211	JP 1990-79449	1990 0328
JP 04160793	A2	19920604	JP 1990-285640	1990 1022
JP 05013172	A2	19930122	JP 1991-226988	1991 0906

US 5700591	A	19971223	US 1994-216853	
				1994 0323
PRIORITY APPLN. INFO.:			JP 1990-63152	A
				1990 0314
			JP 1990-79449	A
				1990 0328
			JP 1990-265654	A
				1990 1002
			JP 1990-285640	A
				1990 1022
			US 1991-665799	B1
				1991 0308

AB Multilayered light-emitting films are described which comprise a phosphor film (e.g., ≥ 1 chalcogenides of Zn, Cd, Mn, or alkaline earth metals) 1-50 nm thick sandwiched between barrier layers of materials (e.g., alkaline earth fluorides) having larger energy gaps than the phosphor; films comprising stacks of these structures are also described. Electroluminescent devices employing the films are claimed.

IT 121834-31-9, Calcium magnesium sulfide (Ca_{0.6}Mg_{0.4}S)
(electroluminescent multilayer films with barrier layers from)

RN 121834-31-9 HCAPLUS

CN Calcium magnesium sulfide (Ca_{0.6}Mg_{0.4}S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.6	7440-70-2
Mg	0.4	7439-95-4

IT 12032-36-9, Magnesium sulfide
(electroluminescent multilayer films with phosphor films from)

RN 12032-36-9 HCAPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H05B033-14

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST alk earth chalcogenide electroluminescent film; cadmium chalcogenide electroluminescent film; manganese chalcogenide electroluminescent film; zinc chalcogenide

electroluminescent film; electroluminescent
device chalcogenide film
IT Alkaline earth fluorides
(electroluminescent films with barrier layers from)
IT Alkaline earth chalcogenides
(electroluminescent multilayer films with phosphor
films from)
IT Electroluminescent devices
(multilayer emission structures for)
IT Alkaline earth chalcogenides
(sulfides, electroluminescent multilayer films with
phosphor films from)
IT 7789-75-5, Calcium fluoride (CaF₂), uses
(electroluminescent devices containing, with chalcogenide
emitting films)
IT 7440-22-4, Silver, uses
(electroluminescent films with emitting layers from
cadmium zinc sulfide activated with)
IT 12442-27-2, Cadmium zinc sulfide ((Cd,Zn)S)
(electroluminescent films with emitting layers from
silver-activated)
IT 106495-63-0, Cadmium manganese telluride ((Cd,Mn)Te)
121834-31-9, Calcium magnesium sulfide (Ca_{0.6}Mg_{0.4}S)
138187-03-8, Manganese zinc selenide sulfide ((Mn,Zn)(Se,S))
(electroluminescent multilayer films with barrier
layers from)
IT 1314-98-3, Zinc sulfide, uses 1315-09-9, Zinc selenide (ZnSe)
1315-11-3, Zinc telluride
(electroluminescent multilayer films with phosphor
films from)
IT 12032-36-9, Magnesium sulfide 12032-88-1, Manganese
telluride (MnTe) 18820-29-6, Manganese sulfide 37320-90-4,
Manganese selenide
(electroluminescent multilayer films with phosphor
films from)

L37 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1989:124946 HCAPLUS
 DOCUMENT NUMBER: 110:124946
 TITLE: Microencapsulated alkaline earth sulfide
phosphors
 INVENTOR(S): Yokoyama, Taiichi; Shibata, Katsuya
 PATENT ASSIGNEE(S): Tosoh Corp., Japan
 SOURCE.: Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 63178194	A2	19880722	JP 1987-8192	1987 0119
PRIORITY APPLN. INFO.:			JP 1987-8192	1987 0119

AB The title phosphors are successively coated with Et cellulose and a nonionic surfactant. CaMgS:Mn was encapsulated with Et cellulose and Noigen ET100E (nonionic surfactant) to show luminance retention 95% against hydrolysis.

IT 119537-26-7, Calcium magnesium sulfide
(phosphors from manganese-activated, microencapsulation of, for hydrolysis resistance)

RN 119537-26-7 HCAPLUS

CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

IT 12032-36-9, Magnesium sulfide
(phosphors from, microencapsulation of, for hydrolysis resistance)

RN 12032-36-9 HCAPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg == S

IC ICM C09K011-08
ICS H01J029-20

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 119537-26-7, Calcium magnesium sulfide
(phosphors from manganese-activated, microencapsulation of, for hydrolysis resistance)

IT 1314-96-1, Strontium sulfide 12032-36-9, Magnesium sulfide
(phosphors from, microencapsulation of, for hydrolysis resistance)

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L38 ANSWER 1 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2005:429175 HCAPLUS
 DOCUMENT NUMBER: 142:438465
 TITLE: Electroluminescent device
 INVENTOR(S): Yamashita, Seiji
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 11 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2005104509	A1	20050519	US 2004-990370	2004

PRIORITY APPLN. INFO.:

JP 2003-389546

A

1118

2003

1119

- AB To provide an electroluminescent device capable of emitting light with sufficiently high luminance even when applied to a large-area display of 0.25 m² or more, ensuring good driving efficiency and causing less reduction of luminance due to heat generation, the electroluminescent device contains: a transparent conductive film; a light-emitting layer containing a phosphor particle and a binder; and a back electrode, wherein the transparent conductive film has a surface resistivity of 0.05 to 50 Ω/.box., the light-emitting layer has an average thickness of 1 to 25 μm, and the back electrode comprises a metal.
- IT 12032-36-9, Magnesium sulfide
(electroluminescent device)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

- IC ICM H01J001-62
- INCL 313503000
- CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
- IT 1303-00-0, Gallium arsenide, properties 1306-23-6, Cadmium sulfide, properties 1306-24-7, Cadmium selenide, properties 1306-25-8, Cadmium telluride, properties 1314-96-1, Strontium sulfide 1314-98-3, Zinc sulfide, properties 1315-09-9, Zinc selenide 1315-11-3, Zinc telluride 7429-90-5, Aluminum, properties 7439-89-6, Iron, properties 7440-06-4, Platinum, properties 7440-22-4, Silver, properties 7440-50-8, Copper, properties 7440-57-5, Gold, properties 12032-36-9, Magnesium sulfide 12063-98-8, Gallium phosphide, properties 20548-54-3, Calcium sulfide (electroluminescent device)

L38 ANSWER 2 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:181998 HCAPLUS

DOCUMENT NUMBER: 142:228508

TITLE: Inorganic thin layer, organic electroluminescence device including the same, and fabrication method thereof

INVENTOR(S): Ju, Byeong-Kwon; Kim, Jai-Kyeong; Kim, Young-Chul; Kim, Hoon; Kim, Kwang-Ho; Lee, Joo-Won

PATENT ASSIGNEE(S): S. Korea

SOURCE: U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2005046339 A1 20050303 US 2004-922931

2004
0823

PRIORITY APPLN. INFO.: KR 2003-59905

A
2003
0828

AB The present invention discloses an inorg. thin **layer** which is composed of an inorg. composite containing at least two kinds of inorg. materials and shows excellent moisture and oxygen proof, an organic electroluminescence device including the inorg. thin **layer** as a passivation **layer**, and a fabrication method thereof.

IC ICM H05B033-00

INCL 313504000

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST inorg thin **layer** org electroluminescence device manuf

IT Electroluminescent devices
(displays; inorg. thin **layer**, organic electroluminescence device including the same, and fabrication method thereof)

IT Luminescent screens
(electroluminescent; inorg. thin **layer**, organic electroluminescence device including the same, and fabrication method thereof)

IT Composites
Electroluminescent devices
Films
Passivation
Ultrathin films
Water-resistant materials
(inorg. thin **layer**, organic electroluminescence device including the same, and fabrication method thereof)

IT Nitrides
Oxides (inorganic), properties
(inorg. thin **layer**, organic electroluminescence device including the same, and fabrication method thereof)

IT 1305-78-8, Calcia, properties 1309-48-4,
Magnesia, properties 1313-59-3, Sodium oxide, properties 1314-23-4, Zirconia, properties 1314-61-0, Tantala 1344-28-1, Alumina, properties 7631-86-9, Silica, properties 7783-40-6, Magnesium difluoride 12033-89-5, Silicon nitride, properties 13463-67-7, Titania, properties
(inorg. thin **layer**, organic electroluminescence device including the same, and fabrication method thereof)

L38 ANSWER 3 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:836528 HCAPLUS

DOCUMENT NUMBER: 141:340075

TITLE: Quantum dot white and colored light-emitting devices

INVENTOR(S): Miller, Jeffrey N.; Moon, Ronald L.; Bawendi, Moungi E.; Heine, Jason; Jensen, Klavs F.

PATENT ASSIGNEE(S): Massachusetts Institute of Technology, USA

SOURCE: U.S., 14 pp., Cont.-in-part of U.S. 6,501,091.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6803719	B1	20041012	US 1999-350956	1999 0709
US 6501091	B1	20021231	US 1998-167795	1998 1007
US 2003127659	A1	20030710	US 2002-329596	2002 1226
US 6890777	B2	20050510		
US 2003127660	A1	20030710	US 2002-329909	2002 1226
US 2004259363	A1	20041223	US 2004-877698	2004 0625
PRIORITY APPLN. INFO.:			US 1998-92120P	P 1998 0401
			US 1998-167795	A2 1998 1007
			US 1999-350956	A3 1999 0709

- AB Compns. are described which comprise a population of quantum dots (QDs) having a selected size distribution embedded in a host matrix, the QDs being selected to photoluminesce when irradiated by light from a primary source. The size distribution of the QDs may be chosen to cause light of a particular color to be emitted. Prepolymer compns. of the QDs with precursors for producing the host matrix are also described. Methods of producing light of desired colors using the compns. are also described. Devices are described which employ the compns. in combination with a primary light source (e.g., an electroluminescent device) to produce light of a desired color. The light emitted from the device may be of either a pure (monochromatic) color, or a mixed (polychromatic) color, and may consist solely of light emitted from the QDs themselves, or of a mixture of light emitted from the QDs and light emitted from the primary source. The QDs may optionally be overcoated to increase photoluminescence.
- IT 12032-36-9, Magnesium sulfide
 (photoluminescent quantum dot compns. and
 light-emitting devices with color conversion
 layers formed from them and their use for producing
 light of desired colors)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

- IC ICM H01L033-00
 ICS H01J001-62
 INCL 313501000; 313502000; 313503000; 257089000; 257098000; 257100000
 CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other
 Related Properties)
 Section cross-reference(s): 76
 ST photoluminescent quantum dot compn; light emitting device quantum
 dot color conversion layer
 IT Hydrogels
 (host; photoluminescent quantum dot compns. and light-emitting
 devices with color conversion layers formed from them
 and their use for producing light of desired colors)
 IT Acrylic polymers, uses
 Polyimides, uses
 Silicate glasses
 (host; photoluminescent quantum dot compns. and light-emitting
 devices with color conversion layers formed from them
 and their use for producing light of desired colors)
 IT Electroluminescent devices
 Light sources
 Luminescent substances
 Quantum dot devices
 Quantum size effect
 (photoluminescent quantum dot compns. and light-emitting
 devices with color conversion layers formed from them
 and their use for producing light of desired colors)
 IT Epoxy resins, uses
 Peptides, uses
 Poly(arylenealkenylenes)
 Polydiacetylenes
 Polyethers, uses
 Polyphosphates
 Polysaccharides, uses
 Polysiloxanes, uses
 Polysulfones, uses
 Silica gel, uses
 (photoluminescent quantum dot compns. and light-emitting
 devices with color conversion layers formed from them
 and their use for producing light of desired colors)
 IT Conducting polymers
 (polythiophenes; photoluminescent quantum dot compns. and
 light-emitting devices with color conversion layers
 formed from them and their use for producing light of desired
 colors)
 IT 111-40-0D, Diethylenetriamine, reaction products with
 formaldehyde-Ph glycidyl ether copolymer and 6-mercaptophexanol
 1633-78-9D, 6-Mercaptophexanol, reaction products with
 diethylenetriamine and formaldehyde-Ph glycidyl ether copolymer
 7631-86-9, Silica, uses 9003-53-6, Polystyrene 97052-23-8D,
 Formaldehyde-phenyl glycidyl ether copolymer, reaction products
 with diethylenetriamine and 6-mercaptophexanol 146250-82-0,
 1,6-Hexanediol dimethacrylate-lauryl methacrylate copolymer
 (host; photoluminescent quantum dot compns. and light-emitting
 devices with color conversion layers formed from them
 and their use for producing light of desired colors)
 IT 1303-00-0, Gallium arsenide, uses 1303-11-3, Indium arsenide,
 uses 1306-19-0, Cadmium oxide, uses 1306-23-6, Cadmium

sulfide, uses 1306-24-7, Cadmium selenide, uses 1306-25-8,
 Cadmium telluride, uses 1312-41-0, Indium antimonide
 1313-04-8, Magnesium selenide 1314-13-2, Zinc oxide (ZnO), uses
 1314-98-3, Zinc sulfide, uses 1315-09-9, Zinc selenide
 1315-11-3, Zinc telluride 1344-48-5, Mercury sulfide (HgS)
 9002-88-4, Polyethylene 9003-05-8, Polyacrylamide 9004-34-6,
 Cellulose, uses 9012-36-6, Agarose 12032-36-9,
 Magnesium sulfide 12063-98-8, Gallium phosphide (GaP), uses
 12064-03-8, Gallium antimonide 12068-90-5, Mercury telluride
 20601-83-6, Mercury selenide (HgSe) 20859-73-8, Aluminum
 phosphide 21908-53-2, Mercury oxide (HgO) 22398-80-7, Indium
 phosphide, uses 22831-42-1, Aluminum arsenide 24304-00-5,
 Aluminum nitride 25152-52-7, Aluminum antimonide 25617-97-4,
 Gallium nitride 25617-98-5, Indium nitride 30604-81-0,
 Polypyrrole 82370-43-2, Polyimidazole
 (photoluminescent quantum dot compns. and
 light-emitting devices with color conversion
 layers formed from them and their use for producing
 light of desired colors)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L38 ANSWER 4 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:408197 HCAPLUS
 DOCUMENT NUMBER: 140:414645
 TITLE: Color conversion phosphors for
 luminescent conversion LEDs
 and devices using them
 PATENT ASSIGNEE(S): Osram Opto Semiconductors G.m.b.H., Germany
 SOURCE: Ger. Gebrauchsmusterschrift, 8 pp.
 CODEN: GGXXFR
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 20218718	U1	20040519	DE 2002-20218718	2002 1202

PRIORITY APPLN. INFO.: DE 2002-20218718

2002
1202

- AB Color-converting phosphors for use in luminescent conversion light-emitting devices comprise europium-doped alkaline earth thiosilicates which are described by the general formula A_{2-x}Si₄:Eux (A = Sr, Ca, and/or Mg; and x = 0.005-0.05) and which emit in the 490-560 nm (preferably 545-560 nm) region on excitation in the 300-460 nm region. Luminescent conversion light-emitting devices employing the phosphors, and illumination apparatus employing the light-emitting devices, are also described.
- IT 690269-38-6 690269-39-7 690269-40-0
 690269-41-1
 (color conversion phosphors based on europium-doped alkaline earth

thiosilicates for luminescent conversion
light-emitting devices and devices using
them)

RN 690269-38-6 HCAPLUS
CN Calcium europium magnesium strontium thiosilicate
(Ca0.2Eu0.02Mg0.2Sr1.58(Si₄S)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S ₄ Si	1	51148-24-4
Ca	0.2	7440-70-2
Eu	0.02	7440-53-1
Sr	1.58	7440-24-6
Mg	0.2	7439-95-4

RN 690269-39-7 HCAPLUS
CN Calcium europium magnesium strontium thiosilicate
(Ca0.2Eu0.02Mg0.4Sr1.39(Si₄S)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S ₄ Si	1	51148-24-4
Ca	0.2	7440-70-2
Eu	0.02	7440-53-1
Sr	1.39	7440-24-6
Mg	0.4	7439-95-4

RN 690269-40-0 HCAPLUS
CN Calcium europium magnesium strontium thiosilicate
(Ca0.2Eu0.02Mg0.59Sr1.19(Si₄S)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S ₄ Si	1	51148-24-4
Ca	0.2	7440-70-2
Eu	0.02	7440-53-1
Sr	1.19	7440-24-6
Mg	0.59	7439-95-4

RN 690269-41-1 HCAPLUS
CN Calcium europium magnesium strontium thiosilicate
(Ca0.3Eu0.02Mg0.1Sr1.58(Si₄S)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S ₄ Si	1	51148-24-4
Ca	0.3	7440-70-2
Eu	0.02	7440-53-1
Sr	1.58	7440-24-6
Mg	0.1	7439-95-4

IC ICM H01L033-00
ICS C09K011-59; C09K011-56; C09K011-55
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
ST luminescent conversion light emitting

device alk earth thiosilicate phosphor; europium doped alk earth thiosilicate color conversion phosphor
 IT **Electroluminescent devices**
Phosphors
 (color conversion phosphors based on europium-doped alkaline earth thiosilicates for luminescent conversion light-emitting devices and devices using them)
 IT Group VIA element compounds
Silicates, uses
 (thiosilicates, alkaline earth, europium-doped; color conversion phosphors based on europium-doped alkaline earth thiosilicates for luminescent conversion light-emitting devices and devices using them)
 IT 7440-53-1, Europium, uses
 (alkaline earth thiosilicates doped with; color conversion phosphors based on europium-doped alkaline earth thiosilicates for luminescent conversion light-emitting devices and devices using them)
 IT 690269-36-4, Europium strontium thiosilicate (Eu0.02Sr1.98(SiS₄))
 690269-37-5 690269-38-6 690269-39-7
690269-40-0 690269-41-1
 (color conversion phosphors based on europium-doped alkaline earth thiosilicates for luminescent conversion light-emitting devices and devices using them)

L38 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:154871 HCAPLUS
 DOCUMENT NUMBER: 138:212581
 TITLE: Luminous device
 INVENTOR(S): Seo, Satoshi; Imai, Keitaro
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 41 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003038594	A1	20030227	US 2002-219297	2002 0816
JP 2003178882	A2	20030627	JP 2002-241318	2002 0822
JP 2004079452	A2	20040311	JP 2002-241401	2002 0822
CN 1407836	A	20030402	CN 2002-142069	2002 0826
PRIORITY APPLN. INFO.:			JP 2001-255262	A 2001 0824

JP 2002-241318

A3

2002
0822

- AB Light-emitting devices comprising an anode; a cathode; an organic compound **layer** provided between the anode and the cathode; and a conductive film comprising an inorg. compound provided between the organic compound **layer** and the cathode are described in which the conductive film comprises a material having a smaller work function than the cathode (e.g., ≤ 3.5 eV) and an elec. conductivity of $\geq 1 + 10^{-10}$ S/m. The film can be thicker than that of a conventional cathode buffer **layer** formed by using an insulating material. Displays employing the devices integrated with thin-film transistors are also described.
- IT 12032-36-9, Magnesium sulfide
(light-emitting devices with cathode-side conductive buffer layers)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

- IC ICM H05B033-00
- INCL 313506000
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
- ST light emitting device conductive buffer **layer**
- IT Electric conductors
Electroluminescent devices
(light-emitting devices with cathode-side conductive buffer layers)
- IT 1314-96-1, Strontium sulfide 1343-88-0, Magnesium silicate
1344-95-2, Calcium silicate 12007-25-9, Magnesium boride (MgB₂)
12008-21-8, Lanthanum boride 12013-82-0, Calcium nitride
12032-36-9, Magnesium sulfide 12057-71-5, Magnesium nitride 12650-28-1, Barium silicate. 12712-63-9, Strontium silicate 20548-54-3, Calcium sulfide 21109-95-5, Barium sulfide 53801-50-6, Yttrium boride 97793-35-6, Cerium boride.
(light-emitting devices with cathode-side conductive buffer layers)

L38 ANSWER 6 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:92432 HCAPLUS

DOCUMENT NUMBER: 138:144835

TITLE: Light-emitting device with organic **layer** doped with photoluminescent material

INVENTOR(S): Duggal, Anil Raj; Srivastava, Alok Mani;
Duclos, Steven Jude

PATENT ASSIGNEE(S): General Electric Company, USA

SOURCE: U.S., 13 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6515314	B1	20030204	US 2000-713394	2000 1116
US 2003094626	A1	20030522	US 2002-298202	2002 1115
US 6777724	B2	20040817		
PRIORITY APPLN. INFO.:			US 2000-713394	A3 2000 1116

- AB A light-emitting device is described comprising an anode; a cathode; and at least one organic electroluminescent (EL) material disposed between the anode and the cathode, the organic EL material having a plurality of nanoparticles of at least one **inorg. photoluminescent (PL)** material dispersed therein, the organic EL material being capable of emitting a first electromagnetic (EM) radiation having a first spectrum in response to an elec. voltage applied through the anode and the cathode, and the inorg. PL material being capable of absorbing a portion of the first EM radiation and emitting a second EM radiation having a second spectrum, wherein the organic EL material having the PL nanoparticles dispersed therein is applied on the anode by a method selected from the group consisting of spin coating, spray coating, dip coating, roller coating, and ink-jet printing.
- IC ICM H01L031-072
- INCL 257184000; 257040000; 257089000; 257098000; 257103000; 313501000;
313503000; 313506000; 313507000
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 22, 38, 76
- IT Polymers, uses
(alkyl fluorene; light-emitting device with organic layer doped with phosphor fabricated by using)
- IT Metal alkoxides
(aluminum, organic light emitting material, alkyl phenoxide; light-emitting device with organic layer doped with phosphor fabricated by using)
- IT Electroluminescent devices
(light-emitting device with organic layer doped with phosphor)
- IT Ink-jet printing
(light-emitting device with organic layer doped with phosphor fabricated by using)
- IT Phenols, uses
(metal salts, organic light emitting material; light-emitting device with organic layer doped with phosphor fabricated by using)
- IT Polysilanes
(organic light emitting material; light-emitting device with organic layer doped with phosphor fabricated by using)
- IT 1312-43-2, Indium oxide 1314-13-2, Zinc oxide, uses 1332-29-2, Tin oxide 50926-11-9, Indium tin oxide 117944-65-7, Indium zinc oxide
(anode; light-emitting device with organic layer doped with phosphor fabricated by using)
- IT 7429-90-5, Aluminum, uses 7439-91-0, Lanthanum, uses

- 7439-93-2, Lithium, uses 7439-95-4, **Magnesium**, uses
 7440-09-7, Potassium, uses 7440-22-4, Silver, uses 7440-23-5,
 Sodium, uses 7440-24-6, Strontium, uses 7440-31-5, Tin, uses
 7440-39-3, Barium, uses 7440-66-6, Zinc, uses 7440-67-7,
 Zirconium, uses 7440-70-2, Calcium, uses 7440-74-6,
 Indium, uses
 (cathode; light-emitting device with organic **layer** doped
 with phosphor fabricated by using)
- IT 86-73-7D, Fluorene, nitro derivative 91-19-0D, Quinoxaline, derivs.
 91-22-5D, Quinoline, derivs. 844-51-9D, derivs. 2085-33-8,
 Tris(8-quinolinolato)aluminum 11120-54-0D, Oxadiazole, derivs.
 (electron injection material; light-emitting device with organic
layer doped with phosphor fabricated by using)
- IT 128-69-8, 3,4,9,10-Perylenetetra-carboxylic dianhydride
 135704-54-0
 (hole injection material; light-emitting device with organic
layer doped with phosphor fabricated by using)
- IT 25067-59-8, Poly(N-vinylcarbazole)
 (light-emitting device with organic **layer** doped with
 phosphor fabricated by using)
- IT 91-64-5, Coumarin 106-99-0D, Butadiene, tetra-Ph 120-12-7,
 Anthracene, uses 191-07-1, Coronene 198-55-0, Perylene
 517-51-1, Rubrene 632-51-9 7440-20-2D, Scandium,
 alkylphenoxyde 7440-55-3D, Gallium, alkylphenoxyde 7440-74-6D,
 Indium, alkylphenoxyde 13963-57-0, Tris(acetylacetone)aluminum
 14284-94-7, Tris(acetylacetone)scandium 14405-43-7,
 Tris(acetylacetone)gallium 14405-45-9,
 Tris(acetylacetone)indium 25190-62-9, Poly(1,4-phenylene)
 28802-91-7, Phenylanthracene 153521-90-5, 1,3,5-Tris[N-(4-
 diphenylaminophenyl)phenylamino] benzene
 (organic light emitting material; light-emitting device with organic
layer doped with phosphor fabricated by using)
- IT 1309-48-4, **Magnesium** oxide, uses
 (phosphor, mixture of germanium oxide and fluoride;
 light-emitting device with organic **layer** doped with
 phosphor fabricated by using)
- IT 1310-53-8, Germanium oxide (GeO₂), uses
 (phosphor, mixture of **magnesium** oxide and fluoride;
 light-emitting device with organic **layer** doped with
 phosphor fabricated by using)
- IT 7783-40-6, **Magnesium** fluoride
 (phosphor, mixture of **magnesium** oxide and germanium
 oxide; light-emitting device with organic **layer** doped
 with phosphor fabricated by using)
- IT 1314-36-9, Yttrium oxide (Y₂O₃), uses 7440-27-9, Terbium, uses
 7440-45-1, Cerium, uses 11088-40-7, Strontium chloride phosphate
 (Sr₅Cl(Po₄)₃) 12005-21-9, Aluminum yttrium oxide (Al₅Y₃O₁₂)
 12027-88-2, Yttrium silicate (Y₂SiO₅) 13709-90-5, Gadolinium
 borate (GdB₃O₃) 18923-26-7, Cerium(3+), uses 20644-06-8,
Magnesium strontium pyrophosphate (MgSrP₂O₇) 22541-20-4,
 Terbium(3+), uses 55070-88-7, Aluminum cerium **magnesium**
 oxide (Al₁₁CeMgO₁₉) 55134-50-4, Aluminum barium
magnesium oxide (Al₁₆BaMg₂₀O₂₇) 99533-22-9,
 Calcium **magnesium** chloride silicate
 (Ca₈MgCl₂(SiO₄)₄) 352033-92-2 494201-96-6, Aluminum cerium
 gadolinium yttrium oxide (Al₅(Ce,Gd,Y)O₁₂) 494201-97-7,
 Aluminum cerium gallium yttrium oxide ((Al,Ga)₅(Ce,Y)O₁₂)
 494201-98-8 494201-99-9, Gadolinium vanadium yttrium borate
 oxide ((Gd,Y)V₂O₅)O₁₀ 494201-101-4
 (phosphor; light-emitting device with organic **layer**

IT doped with phosphor fabricated by using)
 7439-96-5, Manganese, uses 7440-53-1, Europium, uses
 7440-69-9, Bismuth, uses 16397-91-4, Manganese(2+), uses
 16910-54-6, Europium(2+), uses 19768-33-3, Manganese(4+), uses
 22541-18-0, Europium(3+), uses 23713-46-4, Bismuth(3+), uses
 (phosphor; light-emitting device with organic layer
 doped with phosphor fabricated by using)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L38 ANSWER 7 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:314516 HCAPLUS
 DOCUMENT NUMBER: 136:332605
 TITLE: Light-emitting devices
 using coated phosphors
 INVENTOR(S): Juestel, Thomas; Ronda, Cornelis; Mayr,
 Walter; Schmidt, Peter; Weiler, Volker
 PATENT ASSIGNEE(S): Philips Corporate Intellectual Property GmbH,
 Germany; Koninklijke Philips Electronics N.V.
 SOURCE: Eur. Pat. Appl., 8 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1199757	A2	20020424	EP 2001-124584	2001 1015
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
DE 10051242	A1	20020425	DE 2000-10051242	2000 1017
CN 1349262	A	20020515	CN 2001-138578	2001 1014
US 2002105266	A1	20020808	US 2001-978995	2001 1016
JP 2002223008	A2	20020809	JP 2001-319186	2001 1017
PRIORITY APPLN. INFO.:			DE 2000-10051242	A 2000 1017

AB Light-emitting elements are described which
 comprise a light-emitting diode and a phosphor
 layer which incorporates coated (with organic, inorg. or glassy
 materials) phosphors. The phosphor coatings may comprise
 polyorganosiloxanes, latexes, borosilicate glasses,
 phosphosilicate glasses, alkali metal silicate glasses, oxides,
 borates, and/or phosphates. The phosphors may be oxide phosphors,
 borate phosphors, sulfide phosphors, aluminate phosphors, vanadate
 phosphors, and/or silicate phosphors.

IT 119537-26-7, Magnesium calcium sulfide ($Mg_0\text{-}1Ca_0\text{-}1S$)
 (europium-activated; light-emitting devices
 with phosphor layers including coated phosphors)

RN 119537-26-7 HCAPLUS

CN Calcium magnesium sulfide ((Ca,Mg)S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0 - 1	7440-70-2
Mg	0 - 1	7439-95-4

IC ICM H01L033-00

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

ST light emitting device phosphor layer coated phosphor

IT Silicate glasses

(alkali metal silicate; light-emitting devices with phosphor layers including coated phosphors)

IT Electroluminescent devices

Latex

Phosphors

(light-emitting devices with phosphor layers including coated phosphors)

IT Aluminates

Borates

Borosilicate glasses

Oxides (inorganic), uses

Phosphates, uses

Phosphosilicate glasses

Polysiloxanes, uses

Silicates, uses

Sulfides, uses

(light-emitting devices with phosphor layers including coated phosphors)

IT Group VB element compounds

(vanadates; light-emitting devices with phosphor layers including coated phosphors)

IT 1314-96-1, Strontium sulfide

(cerium- or europium-activated; light-emitting devices with phosphor layers including coated phosphors)

IT 12525-03-0, Calcium lanthanum sulfide (CaLa₂S₄)

(cerium-activated; light-emitting devices with phosphor layers including coated phosphors)

IT 1309-48-4, Magnesium oxide (MgO), uses 1312-76-1, Potassium

silicate 7631-86-9, Silica, uses 7784-30-7, Aluminum phosphate (AlPO₄)

(coating; light-emitting devices with phosphor layers including coated phosphors)

IT 12535-38-5, Strontium yttrium sulfide (SrY₂S₄) 12592-70-0,

Strontium gallium sulfide (SrGa₂S₄) 82992-94-7, Calcium

strontium sulfide ((Ca,Sr)S) 119537-26-7, Magnesium

calcium sulfide (Mg_{0.1}Ca_{0.1}S) 272792-87-7

(europium-activated; light-emitting devices

with phosphor layers including coated phosphors)

IT 12005-21-9, YAG 12254-04-5, Barium magnesium aluminate

(BaMgAl10O17) 20548-54-3, Calcium sulfide 284461-18-3,
 Aluminum gadolinium gallium yttrium oxide (Al₀₋₅Gd₀₋₃Ga₀₋₅Y₀₋₃O₁₂)
 (light-emitting devices with phosphor
 layers including coated phosphors)

IT 7439-96-5, Manganese, uses 7440-45-1, Cerium, uses 7440-53-1,
 Europium, uses
 (phosphors activated with; light-emitting
 devices with phosphor layers including coated phosphors)

L38 ANSWER 8 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:107711 HCAPLUS

DOCUMENT NUMBER: 136:158612

TITLE: Luminescence conversion based
 light emitting diode and

INVENTOR(S): phosphors for wavelength conversion
 Danielson, Earl; Ellens, Andries; Jermann,
 Frank; Rossner, Wolfgang; Devenney, Martin;
 Giaquinta, Daniel; Kobusch, Manfred

PATENT ASSIGNEE(S): Osram Opto Semiconductors G.m.b.H. & Co. OHG,
 Germany; Symyx Technologies Inc.

SOURCE: PCT Int. Appl., 35 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002011173	A1	20020207	WO 2001-US23665	2001 0727
EP 1328959	A1	20030723	EP 2001-959261	2001 0727
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2004505172	T2	20040219	JP 2002-516806	2001 0727
US 2004124758	A1	20040701	US 2003-333725	2003 0123
US 6850002	B2	20050201	US 2000-221414P	P 2000 0728
PRIORITY APPLN. INFO.: ..				
			WO 2001-US23665	W 2001 0727

AB Light emitting devices are described
 comprising at least one LED with primary emission (peak)
 from 370 to 480 nm covered directly or indirectly with a
 phosphor-containing covering, the phosphor-containing covering comprising

at least one of the following phosphors: type I: a metal sulfide photoluminescent material activated with europium containing at least one element M selected from the group consisting of Ba, Mg, and Zn; type II: a complex thiometallate photoluminescent material activated with at least one of europium and cerium, containing (1) at least one element M* selected from the group consisting of Mg, and Zn, and (2) at least one element N* selected from the group consisting of Al, Ga, In, Y, La, Gd. Phosphors which absorb radiation having a first spectrum and emits radiation having a second spectrum are also described comprising a luminescent metal sulfide MS comprising at least one element selected from the group M = Ba, Mg, and Zn alone or in combination with at least one of Sr, Ca; M being activated with europium, or a luminescent phosphor comprising a complex metal thiometallate photoluminescent material M*N*2S4 comprising of at least one element selected from the group M* = Mg, Zn, alone or in combination with at least one of Ba, Sr, Ca, and at least one element selected from the group N* = Al, Ga, alone or in combination with In, Y, La, Gd, N* being activated with at least one of Eu and Ce.

IT 389063-68-7, Barium calcium europium gallium magnesium sulfide (Ba0.2Ca0.15Eu0.05Ga2Mg0.6S4) 393587-13-8

393587-14-9 393587-22-9

(luminescence conversion based light emitting diode and phosphors for wavelength conversion)

RN 389063-68-7 HCPLUS

CN Barium calcium europium gallium magnesium sulfide (Ba0.2Ca0.15Eu0.05Ga2Mg0.6S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9
Ca	0.15	7440-70-2
Ga	2	7440-55-3
Eu	0.05	7440-53-1
Ba	0.2	7440-39-3
Mg	0.6	7439-95-4

RN 393587-13-8 HCPLUS

CN Calcium europium gallium magnesium strontium sulfide (Ca0.3Eu0.05Ga2Mg0.55Sr0.1S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9
Ca	0.3	7440-70-2
Ga	2	7440-55-3
Eu	0.05	7440-53-1
Sr	0.1	7440-24-6
Mg	0.55	7439-95-4

RN 393587-14-9 HCPLUS

CN Barium calcium europium gallium magnesium sulfide (Ba0.23Ca0.17Eu0.05Ga2Mg0.55S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

S	4	7704-34-9
Ca	0.17	7440-70-2
Ga	2	7440-55-3
Eu	0.05	7440-53-1
Ba	0.23	7440-39-3
Mg	0.55	7439-95-4

RN 393587-22-9 HCAPLUS

CN Calcium europium gallium magnesium strontium sulfide
(Ca0.28Eu0.05Ga2Mg0.57Sr0.1S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9
Ca	0.28	7440-70-2
Ga	2	7440-55-3
Eu	0.05	7440-53-1
Sr	0.1	7440-24-6
Mg	0.57	7439-95-4

IC ICM H01J033-00

ICS H01J001-62

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s) : 76

ST light emitting diode phosphor

luminescence conversion

IT Electroluminescent devices

Phosphors

(luminescence conversion based light

emitting diode and phosphors for wavelength conversion)

IT Sulfides, uses

(phosphor; luminescence conversion based

light emitting diode and phosphors for

wavelength conversion)

IT 7440-53-1, Europium, uses

(luminescence activator; luminescence conversion based light emitting diode and phosphors for wavelength conversion)

IT 7440-45-1, Cerium, uses

(luminescence conversion based light emitting diode and phosphors for wavelength conversion)

IT 7429-90-5, Aluminum, occurrence 7439-91-0, Lanthanum, occurrence

7439-95-4, Magnesium, occurrence 7440-24-6, Strontium,

occurrence 7440-39-3, Barium, occurrence 7440-54-2,

Gadolinium, occurrence 7440-55-3, Gallium, occurrence

7440-65-5, Yttrium, occurrence 7440-66-6, Zinc, occurrence

7440-70-2, Calcium, occurrence 7440-74-6, Indium, occurrence

(luminescence conversion based light

emitting diode and phosphors for wavelength conversion)

IT 389063-68-7, Barium calcium europium gallium magnesium

sulfide (Ba0.2Ca0.15Eu0.05Ga2Mg0.6S4) 389063-72-3, Barium

europium gallium magnesium sulfide (Ba0.38Eu0.05Ga2Mg0.57S4)

393587-09-2 393587-10-5 393587-11-6, Europium strontium

sulfide (Eu0.02Sr0.98S) 393587-12-7 393587-13-8

393587-14-9 393587-15-0 393587-16-1 393587-17-2

393587-18-3 393587-19-4 393587-20-7 393587-21-8

393587-22-9 393587-23-0

(luminescence conversion based light

emitting diode and phosphors for wavelength conversion)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L38 ANSWER 9 OF 29 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:91285 HCPLUS
 DOCUMENT NUMBER: 136:223555
 TITLE: Photoluminescence studies of the formation of MgS/CdSe quantum dots grown by molecular beam epitaxy
 AUTHOR(S): Funato, M.; Bradford, C.; Balocchi, A.; Smith, J. M.; Prior, K. A.; Cavenett, B. C.
 CORPORATE SOURCE: Department of Physics, Heriot-Watt University, Edinburgh, EH14 4AS, UK
 SOURCE: Physica Status Solidi B: Basic Research (2002), 229(1), 477-480
 CODEN: PSSBBD; ISSN: 0370-1972
 PUBLISHER: Wiley-VCH Verlag Berlin GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The optical properties of MgS/CdSe quantum structures grown by MBE were characterized by photoluminescence (PL) spectroscopy. The increase in the CdSe thickness from 1 to beyond 3 monolayers gave, at 1st, quantum wells (QWs) and then quantum dots (QDs) by Stranski-Krastanov growth. The PL temperature dependence measurements show clear difference in the optical properties of QWs and QDs.
 IT 12032-36-9, Magnesium sulfide (photoluminescence studies of formation of MgS/CdSe quantum dots grown by mol. beam epitaxy)
 RN 12032-36-9 HCPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 IT 137575-57-6, Magnesium zinc selenide sulfide mg0-1zn0-1se0-1s0-1 (capping layer; photoluminescence studies of formation of MgS/CdSe quantum dots grown by mol. beam epitaxy)
 IT 1306-24-7, Cadmium selenide, properties 12032-36-9, Magnesium sulfide (photoluminescence studies of formation of MgS/CdSe quantum dots grown by mol. beam epitaxy)
 REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 10 OF 29 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:71954 HCPLUS
 DOCUMENT NUMBER: 136:126332
 TITLE: Organic-inorganic hybrid light emitting devices (HLED)
 INVENTOR(S): Sellinger, Alan; Laine, Richard M.
 PATENT ASSIGNEE(S): Canon Kabushiki Kaisha, Japan
 SOURCE: PCT Int. Appl., 35 pp.
 CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002005971	A1	20020124	WO 2001-US41351	2001 0713
US 6517958	B1	20030211	US 2000-616561	2000 0714
JP 2004506050	T2	20040226	JP 2002-511899	2001 0713
PRIORITY APPLN. INFO.:			US 2000-616561	A 2000 0714
			WO 2001-US41351	W 2001 0713

- AB Organic-inorg. hybrid light-emitting device (HLED) materials are described which comprise a silsesquioxane structure, especially a polyhedral silsesquioxane structure, having ≥ 1 functional moiety substituent selected from hole transport, electron transport, and emissive material moieties. Organic-inorg. HLEDs are also described which comprise an anode containing a high work function metal or metal alloy; a cathode containing a low work function metal or metal alloy; and a layer of organic-inorg. luminescent material comprising the silsesquioxane structures elec. connected to the anode and cathode.
- IC ICM B05D003-02
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 37
- IT Calcium alloy, nonbase
 Magnesium alloy, nonbase
 Sodium alloy, nonbase
 (organic-inorg. hybrid light-emitting device materials based on substituted silsesquioxanes and devices using them)
- IT 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 7440-23-5, Sodium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-70-2, Calcium, uses 50926-11-9, Indium tin oxide 69655-76-1D, Octavinylsilsesquioxane, reaction products with polyfluorenes 73695-68-8 98743-33-0, Tin fluoride oxide 126213-51-2 195456-48-5D, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl), reaction products with octavinylsilsesquioxane
 (organic-inorg. hybrid light-emitting device materials based on substituted silsesquioxanes and devices using them)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L38 ANSWER 11 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:43950 HCAPLUS
 DOCUMENT NUMBER: 136:109844
 TITLE: An efficient luminescent substance
 PATENT ASSIGNEE(S): OSRAM Opto Semiconductors GmbH & Co. Ohg,
 Germany
 SOURCE: Ger. Gebrauchsmusterschrift, 11 pp.
 CODEN: GGXXFR
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 20108873	U1	20020117	DE 2001-20108873	2001 0529
CA 2448529	AA	20021205	CA 2001-2448529	2001 0607
WO 2002097901	A1	20021205	WO 2001-DE2131	2001 0607
EP 1390989	A1	20040225	EP 2001-947188	2001 0607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2004527638	T2	20040909	JP 2003-500984	2001 0607
US 2004135123	A1	20040715	US 2003-477549	2003 1112
PRIORITY APPLN. INFO.:			DE 2001-20108873	U 2001 0529
			WO 2001-DE2131	W 2001 0607

AB This thiometallate is based on the general formula, AB₂S₄:D₂₊, where A is a divalent cation such as Ba or it is in a combination with Mg and/or Ca; where B is a trivalent cation, one of Al, Ga or Y; and D is an activator, Eu and/or Ce can be selected. The composition of the luminescent substance is chosen to correspond to (AS)·w(B₂S₃), where w is in the range 0.8≤w≤0.98 or 1.02≤w<1.2. B in the formula can be Ga, partially substituted for by Al; A can be a combination of Mg, Ca and Ba; and the activator Eu can also substitute for A. The formula can also be expressed by (AS)·w(Ga₂S₃) where

$A = Mg_a Ca_b Ba_c Eu_t$ and $a+b+c=1$ with $0.4 \leq a \leq 0.8$,
 $0.5 \leq b \leq 0.35$, $0.05 \leq c \leq 0.4$,
 $0.01 \leq t \leq 0.1$, $0.8 \leq w \leq 0.98$ or
 $1.02 \leq w \leq 1.2$. Another alternative is
 $(AS) \cdot w(Ga_2S_3)$ where $A = Mg_a Ba_b Eu_t$ and $a+b+t=1$ with
 $0.4 \leq a \leq 0.8$, $0.1 \leq b \leq 0.59$,
 $0.01 \leq t \leq 0.1$, $0.8 \leq w \leq 0.98$ or
 $1.02 \leq w \leq 1.2$.

IT 389063-67-6P 389063-68-7P 389063-69-8P

389063-70-1P

(efficient luminescent substance)

RN 389063-67-6 HCAPLUS

CN Barium calcium europium gallium magnesium sulfide
 $(Ba_{0.2}Ca_{0.15}Eu_{0.05}Ga_{1.8}Mg_{0.6}S_3.7)$ (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	3.7	7704-34-9
Ca	0.15	7440-70-2
Ga	1.8	7440-55-3
Eu	0.05	7440-53-1
Ba	0.2	7440-39-3
Mg	0.6	7439-95-4

RN 389063-68-7 HCAPLUS

CN Barium calcium europium gallium magnesium sulfide
 $(Ba_{0.2}Ca_{0.15}Eu_{0.05}Ga_{2.0}Mg_{0.6}S_4)$ (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9
Ca	0.15	7440-70-2
Ga	2	7440-55-3
Eu	0.05	7440-53-1
Ba	0.2	7440-39-3
Mg	0.6	7439-95-4

RN 389063-69-8 HCAPLUS

CN Barium calcium europium gallium magnesium sulfide
 $(Ba_{0.2}Ca_{0.15}Eu_{0.05}Ga_{2.2}Mg_{0.6}S_4.3)$ (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4.3	7704-34-9
Ca	0.15	7440-70-2
Ga	2.2	7440-55-3
Eu	0.05	7440-53-1
Ba	0.2	7440-39-3
Mg	0.6	7439-95-4

RN 389063-70-1 HCAPLUS

CN Barium calcium europium gallium magnesium sulfide
 $(Ba_{0.2}Ca_{0.15}Eu_{0.05}Ga_{2.4}Mg_{0.6}S_4.6)$ (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

S		4.6		7704-34-9
Ca		0.15		7440-70-2
Ga		2.4		7440-55-3
Eu		0.05		7440-53-1
Ba		0.2		7440-39-3
Mg		0.6		7439-95-4

IC ICM C09K011-62
 ICS C09K011-84
 CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 57, 78
 ST **electroluminescent phosphor luminescence**
 barium calcium magnesium europium gallium sulfide
 IT Emission spectra
 Luminescent substances
 Phosphors
 Reflection spectra
 Solid-gas reaction
 (efficient luminescent substance)
 IT Phosphors
 (electroluminescent; efficient luminescent substance)
 IT 7727-37-9, Nitrogen, uses
 (efficient luminescent substance)
 IT 389063-67-6P 389063-68-7P 389063-69-8P
 389063-70-1P 389063-71-2P 389063-72-3P 389063-73-4P
 (efficient luminescent substance)
 IT 471-34-1, Calcium carbonate (CaCO₃), reactions 513-77-9, Barium carbonate (BaCO₃) 1308-96-9, Europium oxide (Eu₂O₃) 1309-48-4, Magnesium oxide (MgO), reactions 7697-37-2, Nitric acid, reactions 7783-06-4, Hydrogen sulfide (H₂S), reactions 12024-21-4, Gallium oxide (Ga₂O₃)
 (efficient luminescent substance)

L38 ANSWER 12 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:904833 HCAPLUS
 DOCUMENT NUMBER: 136:45354
 TITLE: Highly efficient fluorescent material
 INVENTOR(S): Ellens, Andries; Kobusch, Manfred; Rossner, Wolfgang
 PATENT ASSIGNEE(S): Patent-Treuhand-Gesellschaft Fuer Elektrische Gluehlampen Mbh, Germany; Osram Opto Semiconductors GmbH & Co. Ohg
 SOURCE: PCT Int. Appl., 18 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2001095400	A1	20011213	WO 2001-DE2130	2001 0607

W: CA, CN, JP, KR, US
 RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,
 MC, NL, PT, SE, TR

DE 10028266	A1	20011213	DE 2000-10028266	
				2000 0609
CA 2381443	AA	20011213	CA 2001-2381443	
				2001 0607
EP 1290737	A1	20030312	EP 2001-947187	
				2001 0607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2003535964	T2	20031202	JP 2002-502837	
				2001 0607
TW 554031	B	20030921	TW 2001-90113951	
				2001 0608
US 2002149001	A1	20021017	US 2002-48963	
				2002 0204
US 6695982	B2	20040224		
PRIORITY APPLN. INFO.:			DE 2000-10028266	A
				2000 0609
			WO 2001-DE2130	W
				2001 0607

AB Thiometallate phosphors described approx. by the general formula AB₂S₄:D₂₊ (A = ≥1 divalent cation selected from Mg, Ca, and/or Sr; B = ≥1 trivalent cation selected from Al, Ga, and/or Y; and D = Eu and/or Ce) are described which the actual composition is chosen to correspond to (AS).w(B₂S₃) (0.8 ≤ w ≤ 0.98 or 1.02 ≤ w ≤ 1.2). Preferably the phosphors are thiogallates. Methods for preparing the thiometallate phosphors are described which entail forming a suspension of nitrates in amts. corresponding to the desired composition; drying the suspension at ≤300° so that the residual moisture content is < 1 weight% to produce a finely dispersed nitrate mixture; grinding the nitrate mixture in a mortar at room temp for 10-60 min (preferably 15-25 min); pyrolyzing the ground mixture at 500-700° (preferably 600°) under an Ar or N₂ atmospheric to produce a mixture of metal oxides corresponding to the desired composition; carrying out a first conversion of the metal oxide mixture at 800-1000° (preferably 900-950°) under flowing H₂S and/or CS₂ for 1-6 h (preferably 4 h); grinding the product; and carrying out a second conversion at 800-1000° (preferably 900-950°) under flowing H₂S and/or CS₂ for 1-6 h (preferably 2 h). Use of the phosphors as color conversion phosphors in light-emitting devices or plasma displays is also described.

IT 379735-68-9P 379735-70-3P 379735-72-5P

379735-73-6P 379735-76-9P

(thiometallate phosphors and their production and use)

RN 379735-68-9 HCPLUS

CN Calcium europium gallium magnesium strontium sulfide
(Ca0.21Eu0.06Ga1.8Mg0.63Sr0.1S3.7) (9CI) (CA INDEX NAME)

Component		Ratio		Component
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		Registry Number
S	3.7	7704-34-9
Ca	0.21	7440-70-2
Ga	1.8	7440-55-3
Eu	0.06	7440-53-1
Sr	0.1	7440-24-6
Mg	0.63	7439-95-4

RN 379735-70-3 HCPLUS

CN Calcium europium gallium magnesium strontium sulfide
(Ca0.21Eu0.06Ga2Mg0.63Sr0.1S4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4	7704-34-9
Ca	0.21	7440-70-2
Ga	2	7440-55-3
Eu	0.06	7440-53-1
Sr	0.1	7440-24-6
Mg	0.63	7439-95-4

RN 379735-72-5 HCPLUS

CN Calcium europium gallium magnesium strontium sulfide
(Ca0.21Eu0.06Ga2.2Mg0.63Sr0.1S4.3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4.3	7704-34-9
Ca	0.21	7440-70-2
Ga	2.2	7440-55-3
Eu	0.06	7440-53-1
Sr	0.1	7440-24-6
Mg	0.63	7439-95-4

RN 379735-73-6 HCPLUS

CN Calcium europium gallium magnesium strontium sulfide
(Ca0.21Eu0.06Ga2.4Mg0.63Sr0.1S4.6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4.6	7704-34-9
Ca	0.21	7440-70-2
Ga	2.4	7440-55-3
Eu	0.06	7440-53-1
Sr	0.1	7440-24-6
Mg	0.63	7439-95-4

RN 379735-76-9 HCPLUS

CN Calcium europium gallium magnesium strontium sulfide
(Ca0.21Eu0.06Ga2.5Mg0.63Sr0.1S4.75) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	4.75	7704-34-9
Ca	0.21	7440-70-2

Ga	2.5	7440-55-3
Eu	0.06	7440-53-1
Sr	0.1	7440-24-6
Mg	0.63	7439-95-4

IC ICM H01L033-00
ICS H01J017-49

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s) : 74

IT 379735-68-9P 379735-70-3P 379735-72-5P
379735-73-6P 379735-76-9P

(thiometallate phosphors and their production and use)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 13 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:802154 HCAPLUS

DOCUMENT NUMBER: 133:342261

TITLE: Organic electroluminescent devices and manufacture

INVENTOR(S): Kawamura, Hisayuki

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2000315581	A2	20001114	JP 1999-124476	
				1999
				0430

PRIORITY APPLN. INFO.: JP 1999-124476

1999
0430

AB The devices comprise: (1) an anode; (2) a 1st organic semiconductor layer; (3) a 1st inorg. charge barrier layer; (4) an organic phosphor layer; (5) a 2nd inorg. charge barrier layer; (6) a 2nd organic semiconductor layer; and (7) a cathode, where (2) and (6) have a specific resistivity $1 \times 10^{-1} - 1 \times 10^9 \Omega \text{ cm}$ and 0.1-500 nm thick; and (3) and (5) comprise Si oxide, ZnO, GaN, GaInN, p-a-Si_{1-x}N_x ($0.5 < x < 1$), a-Si_{1-x}N_x ($0.4 < x < 1$), diamond-like carbon, Li₂O, LiF, CsF, Cs₂O, LiCl, BaO, SrO, MgO, MgF₂, SrCl₂, or a AB compound (A = chalcogenide or nitride of Si, Ge, Sn, Pb, Ga, In, Zn, Cd and Mg; B = compound of Groups 5A-8).

IC ICM H05B033-22

ICS H05B033-22; H05B033-10; H05B033-14

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST org electroluminescence inorg charge barrier device

IT 84-58-2 147-14-8, Copper phthalocyanine 1304-28-5, Barium oxide (BaO), uses 1309-48-4, Magnesium oxide (MgO),

uses 1314-11-0, Strontium oxide (SrO), uses 1314-13-2, Zinc oxide (ZnO), uses 2085-33-8, Tris(8-quinolinolato)aluminum 7440-44-0, Carbon, uses 7447-41-8, Lithium chloride (LiCl), uses 7631-86-9, Silica, uses 7782-40-3, Diamond, uses 7783-40-6, Magnesium fluoride (MgF₂) 7789-24-4, Lithium fluoride (LiF), uses 12057-24-8, Lithium oxide (Li₂O), uses 13400-13-0, Cesium fluoride (CsF) 20281-00-9, Cesium oxide (Cs₂O) 25617-97-4, Gallium nitride (GaN) 50926-11-9, ITO 65181-78-4, TPD 109371-84-8, Silicon nitride (Si_{0.1}N_{0.9}) 120994-23-2, Gallium indium nitride (GaInN) 144810-08-2 213527-39-0 216863-70-6

(organic electroluminescent devices and manufacture)

L38 ANSWER 14 OF 29 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:790783 HCPLUS

DOCUMENT NUMBER: 133:342259

TITLE: Organic electroluminescent devices and manufacture

INVENTOR(S): Hosokawa, Chishio; Kawamura, Hisayuki; Nakamura, Hiroaki

PATENT ASSIGNEE(S): Idemitsu Kosan Co., Ltd., Japan

SOURCE: PCT Int. Appl., 47 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2000067531	A1	20001109	WO 2000-JP2796	2000 0427
W: CN, JP, KR, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1111967	A1	20010627	EP 2000-922898	2000 0427
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
TW 463392	B	20011111	TW 2000-89108193	2000 0429
US 2001009351	A1	20010726	US 2001-750682	2001 0102
US 6856089 US 2005116634	B2 A1	20050215 20050602	US 2004-24729	2004 1230
PRIORITY APPLN. INFO.:			JP 1999-124477	A 1999 0430
			WO 2000-JP2796	W 2000 0427

US 2001-750682

A1

2001
0102

- AB The devices comprise: (1) a glass substrate; (2) a noncryst. semiconductor layer having an n shoulder electrode; (3) an organic electroluminescent laminate; and (4) a p electrode, where (2) comprises chalcogenides (ZnS, ZnSe, CdS, CdTe, ZnTe, MgS, MgSe, ZnSSe, ZnSSe, ZnMgSSe and ZnTeSe), degenerate metal oxide semiconductors (doped oxides of Al, Sn, Zn, In, Cd, Mg, and Si), carbons or diamond-like carbons, and conductive polymers; and (2) (1-700 nm thick) has a band gap >2.7 eV, a specific resistivity 1 + 10⁻³ - 1 + 10⁴ Ω cm, and the electronic charge d. 1 + 10¹² - 1 + 10²⁰ cm⁻³.
- IT 12032-36-9, Magnesium sulfide (MgS)
(organic electroluminescent devices and manufacture)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

- IC ICM H05B033-26
ICS H05B033-28; H05B033-14
- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- IT 147-14-8, Copper phthalocyanine 1306-23-6, Cadmium sulfide (CdS), uses 1306-25-8, Cadmium telluride (CdTe), uses 1313-04-8, Magnesium selenide (MgSe) 1314-98-3, Zinc sulfide (ZnS), uses 1315-09-9, Zinc selenide (ZnSe) 1315-11-3, Zinc telluride (ZnTe) 2085-33-8, Tris(8-quinolinolato)aluminum 7429-90-5, Aluminum, uses 7440-21-3, Silicon, uses 7440-44-0, Carbon, uses 7440-50-8, Copper, uses 7646-85-7, Zinc chloride (ZnCl₂), uses 7782-40-3, Diamond, uses 7789-24-4, Lithium fluoride (LiF), uses 12032-36-9, Magnesium sulfide (MgS) 59989-74-1, Zinc selenide sulfide (Zn(Se,S)) 65181-78-4, TPD 108821-49-4, Zinc selenide telluride (ZnSeTe) 123847-85-8, α-NPD 126213-51-2, 3,4-Polyethylenedioxothiophene 137575-57-6, Magnesium zinc selenide sulfide (MgZnSeS)
(organic electroluminescent devices and manufacture)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L38 ANSWER 15 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1999:233676 HCAPLUS
 DOCUMENT NUMBER: 130:273898
 TITLE: Light-emitting devices and protective coating
 INVENTOR(S): Kono, Ichiro; Jobetto, Hiroyasu
 PATENT ASSIGNEE(S): Casio Computer Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 JP 11097169 A2 19990409 JP 1997-269218
 1997
 0917
 PRIORITY APPLN. INFO.: JP 1997-269218
 1997
 0917

AB The devices comprise: a transparent substrate; an ITO anode; an organic electroluminescent layer; a cathode; and a protective laser comprising an amorphous host selected from oxide(s) or sulfide(s) of Si, B, Ge, P and As and a guest selected from oxide(s) or sulfide(s) of Al, Zn and Be, where the bonding energies of the host and the guest in the oxides are >370 and ≤370 KJ/mol, resp.; alternative host materials are oxide(s) or sulfide(s) of Al, Zn and/or Be; and alternative guest materials are oxide(s) or sulfide(s) of Sc, La, Y, Sn, Ba, Ca, Sr, Mg, Li, Na, K, Rb, Cs and/or Ce.
 IT 12032-36-9, Magnesium sulfide
 (light-emitting devices and protective coating)
 RN 12032-36-9 HCAPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H05B033-04
 ICS H05B033-26; H05B033-28
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 IT 1302-81-4, Aluminum sulfide 1303-33-9, Arsenic sulfide
 1303-86-2, Boron oxide, uses 1304-28-5, Barium oxide, uses
 1304-56-9, Beryllium oxide, uses 1305-78-8, Calcium oxide, uses
 1306-38-3, Cerium oxide, uses 1309-48-4, Magnesium oxide, uses
 1310-53-8, Germanium oxide, uses 1312-73-8, Potassium sulfide
 1312-81-8, Lanthanum oxide 1313-59-3, Sodium oxide, uses
 1313-82-2, Sodium sulfide, uses 1314-11-0, Strontium oxide, uses
 1314-13-2, Zinc oxide, uses 1314-36-9, Yttrium oxide, uses
 1314-56-3, Phosphorus oxide, uses 1314-96-1, Strontium sulfide
 1314-98-3, Zinc sulfide, uses 1327-53-3, Arsenic oxide (As2O3)
 1332-29-2, Tin oxide 1344-28-1, Aluminum oxide, uses
 7440-45-1, Cerium, uses 11116-22-6, Yttrium sulfide
 12014-74-3, Cerium oxide (CeO) 12032-36-9, Magnesium sulfide 12057-24-8, Lithium oxide, uses 12060-08-1, Scandium oxide 12136-45-7, Potassium oxide, uses 12136-58-2, Lithium sulfide 12214-16-3, Cesium sulfide 12737-58-5, Germanium sulfide 12738-87-3, Tin sulfide 13598-22-6, Beryllium sulfide 18088-11-4, Rubidium oxide 20281-00-9, Cesium oxide 20548-54-3, Calcium sulfide 21109-95-5, Barium sulfide 31083-74-6, Rubidium sulfide 39290-88-5, Cerium sulfide 39431-96-4, Lanthanum sulfide 50926-11-9, ITO 50927-81-6, Silicon sulfide 53096-23-4, Scandium sulfide 54511-24-9, Boron sulfide 62140-13-0, Phosphorus sulfide
 (light-emitting devices and protective coating)

DOCUMENT NUMBER: 129:154539
 TITLE: Light emitting diode
 INVENTOR(S): Bojarczuk, Nestor A., Jr.; Guha, Supratik;
 Haight, Richard Alan
 PATENT ASSIGNEE(S): International Business Machines Corp., USA
 SOURCE: Eur. Pat. Appl., 18 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 855751	A2	19980729	EP 1997-310234	1997 1217
EP 855751	A3	19990512	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO	
US 5898185	A	19990427	US 1997-788509	1997 0124
US 5895932	A	19990420	US 1997-811990	1997 0305
PRIORITY APPLN. INFO.:			US 1997-788509	A 1997 0124
			US 1997-811990	A 1997 0305

- AB Hybrid organic-inorg. semiconductor light-emitting diodes comprise an **inorg. electroluminescent layer** and an **overlying organic photoluminescent layer**. The **electroluminescent layer** may be a GaN-system light-emitting diode structure that is electroluminescent in the blue or UV region of the electromagnetic spectrum when the **device** is operated. The **photoluminescent layer** may be formed from tris-(8-hydroxyquinoline)Al (Alq). The UV emission from the **electroluminescent region** excites the Alq, which photoluminesces in the green. Other colors, such as blue or red, may be obtained by appropriately doping the Alq or by using other luminescent organic compds. This provides the benefits of simplicity and ease of fabrication, since a complete redesign of the structure is not necessary to change emission wavelength, and the possibility for making displays by spatially varying the deposition of the **emissive layer**. Displays employing the **devices** are also described.
- IC ICM H01L051-20
 ICS H01L033-00
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 74, 76
- IT 7439-95-4, Magnesium, uses 7440-21-3, Silicon, uses (gallium nitride doped with; light-emitting diodes with hybrid organic-inorg. structures)

L38 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1998:1674 HCAPLUS
 DOCUMENT NUMBER: 128:81986
 TITLE: Non-degenerate wide bandgap semiconductors as injection layers and/or contact electrodes for organic electroluminescent devices
 INVENTOR(S): Ries, Walter; Strite, Samuel Clagett
 PATENT ASSIGNEE(S): International Business Machines Corporation, USA; Ries, Walter; Strite, Samuel Clagett
 SOURCE: PCT Int. Appl., 64 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9747050	A1	19971211	WO 1996-IB557	1996 0605
W: JP, KR, US RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 902983	A1	19990324	EP 1996-915138	1996 0605
R: DE, FR, GB JP 11511895	T2	19991012	JP 1996-500353	1996 0605
WO 9747051	A1	19971211	WO 1997-IB559	1997 0516
W: BR, CA, CN, JP, KR, US RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 2000503798	T2	20000328	JP 1998-500357	1997 0516
KR 2000016407	A	20000325	KR 1998-709981	1998 1205
US 6433355	B1	20020813	US 1999-155591	1999 0208
PRIORITY APPLN. INFO.:			WO 1996-IB557	W 1996 0605
			WO 1997-IB559	W 1997 0516

AB Organic light-emitting devices comprising a substrate, an anode contact electrode, a cathode contact electrode, and an organic active region are described in which ≥ 1 of the electrodes

comprises a non-degenerate wide bandgap semiconductor (if a cathode electrons are injected from the semiconductor conduction band into the LUMO of the organic region; if an anode holes are injected from the semiconductor valance band into the HOMO of the organic region). Use of the devices in displays is indicated.

IT 12032-36-9, Magnesium sulfide
 (nondegenerate wide bandgap semiconductors as injection
 layers and/or contact electrodes for organic
 electroluminescent devices)
 RN 12032-36-9 HCAPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H01L033-00
 ICS H01L051-20
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 74, 76
 ST org electroluminescent device nondegenerate semiconductor contact;
 injection layer semiconductor org electroluminescent
 device
 IT Electric contacts
 Electroluminescent devices
 (nondegenerate wide bandgap semiconductors as injection
 layers and/or contact electrodes for organic
 electroluminescent devices)
 IT Group IIIA element nitrides
 (nondegenerate wide bandgap semiconductors as injection
 layers and/or contact electrodes for organic
 electroluminescent devices)
 IT 7440-44-0, Carbon, uses
 (diamond-like; nondegenerate wide bandgap semiconductors as
 injection layers and/or contact electrodes for organic
 electroluminescent devices)
 IT 409-21-2, Silicon carbide, uses 1304-56-9, Beryllium oxide
 (BeO), uses 1306-23-6, Cadmium sulfide, uses 1313-04-8,
 Magnesium selenide 1314-13-2, Zinc oxide (ZnO), uses
 1314-98-3, Zinc sulfide, uses 1315-09-9, Zinc selenide
 7782-40-3, Diamond, uses 7789-75-5, Calcium difluoride, uses
 10043-11-5, Boron nitride, uses 12032-36-9, Magnesium
 sulfide 20859-73-8, Aluminum phosphide 24304-00-5, Aluminum
 nitride 25617-97-4, Gallium nitride 50926-11-9, Indium tin
 oxide 65181-78-4 106097-44-3, Aluminum gallium nitride
 ((Al,Ga)N) 120994-23-2, Indium gallium nitride 127575-65-9,
 Indium aluminum gallium nitride 137575-57-6, Magnesium zinc
 selenide sulfide ((Mg,Zn)(Se,S)) 200616-82-6, Gallium zinc
 selenide sulfide ((Ga,Zn)(Se,S))
 (nondegenerate wide bandgap semiconductors as injection
 layers and/or contact electrodes for organic
 electroluminescent devices)
 IT 7440-21-3, Silicon, uses
 (substrate; nondegenerate wide bandgap semiconductors as
 injection layers and/or contact electrodes for organic
 electroluminescent devices)

DOCUMENT NUMBER: 127:301089
 TITLE: Thin-film electroluminescent devices with phosphor layers including a Group IIIA metal-containing overlayer
 INVENTOR(S): Sun, Sey-Shing; Bowen, Michael S.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S., 11 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5677594	A	19971014	US 1995-509745	1995 0801
PRIORITY APPLN. INFO.:			US 1995-509745	1995 0801

AB A.c. thin-film electroluminescent devices which comprise an electroluminescent phosphor; a pair of insulating layers sandwiching said electroluminescent phosphor; and a pair of electrode layers sandwiching said pair of insulating layers are described in which the electroluminescent phosphor comprises: a first phosphor layer selected from the group consisting of an alkaline earth sulfide, an alkaline earth selenide, and an alkaline earth sulfide selenide, and further including an activator dopant; and an overlayer deposited atop the first phosphor layer, said overlayer including a Group 3A metal selected aluminum, gallium, and indium. The Group IIIA element may be incorporated within a related phosphor host compound (e.g., the overlayer for SrS phosphors may be Ca0.5Sr0.5Ga2S4).
 IT 12032-36-9, Magnesium sulfide
 (thin-film electroluminescent devices with phosphor layers including a Group IIIA metal-containing overlayer)
 RN 12032-36-9 HCPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg=S

IC ICM H05B033-00
 INCL 313503000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 IT Phosphors
 (electroluminescent; thin-film electroluminescent devices with phosphor layers including a Group IIIA metal-containing overlayer)
 IT Electroluminescent devices
 (thin-film electroluminescent devices with phosphor layers including a Group IIIA metal-containing overlayer)
 IT Group IIIA element compounds
 (thin-film electroluminescent devices with phosphor

IT layers including a Group IIIA metal-containing overlayer)
 1304-39-8, Barium selenide 1305-84-6, Calcium selenide
 1313-04-8, Magnesium selenide 1314-96-1, Strontium sulfide
 1314-98-3, Zinc sulfide, uses 1315-07-7, Strontium selenide
12032-36-9, Magnesium sulfide 20548-54-3, Calcium
 sulfide 21109-95-5, Barium sulfide 110781-13-0, Calcium
 selenide sulfide (Ca(Se,S)) 110781-14-1, Strontium selenide
 sulfide (Sr(Se,S)) 159832-15-2, Calcium strontium thiogallate
 (Ca_{0.5}Sr_{0.5}Ga₂S₄) 161173-78-0, Magnesium selenide sulfide
 (Mg(Se,S)) 197070-32-9, Barium selenide sulfide (Ba(Se,S))
 (thin-film electroluminescent devices with phosphor
 layers including a Group IIIA metal-containing overlayer)
 IT 7440-10-0, Praseodymium, uses 7440-45-1, Cerium, uses
 7440-53-1, Europium, uses 7440-60-0, Holmium., uses
 (thin-film electroluminescent devices with phosphor
 layers including a Group IIIA metal-containing overlayer)

L38 ANSWER 19 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1997:655344 HCAPLUS
 DOCUMENT NUMBER: 127:339041
 TITLE: light-emitting Group II-VI compound device
 elements
 INVENTOR(S): Teraguchi, Nobuaki
 PATENT ASSIGNEE(S): Sharp Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 09260788	A2	19971003	JP 1996-70025	1996 0326
PRIORITY APPLN. INFO.:			JP 1996-70025	1996 0326

AB A 1st element comprises: a GaAs substrate; and a buffer laminate
 contg.a GaAs, a GaInAsP and a ZnSe buffer layer. A 2nd
 element comprises a GaAs substrate and a ZnS/MgS strained
 superlattice buffer layer. A 3rd element comprises: a
 GaAs substrate; a Group IV (Ge) layer formed between a
 Group II-VI and Group III-V compound layer. A 4th element
 comprises: a GaAs substrate; and a buffer laminate comprising a
 GaAs, a GaInAsP, a ZnSe, and a ZnSe/MgS strained supper lattice
 layer. A 5th element comprises: a GaAs substrate; and a
 buffer laminate containing a GaAs, a GaInAsP, a Ge, and a ZnSe
 layer.

IT **12032-36-9**, Magnesium sulfide (MgS)
 (light-emitting Group II-VI compound device
 elements)

RN 12032-36-9 HCAPLUS
 CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H01S003-18
 ICS H01L033-00
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 76
 IT 1303-00-0, Gallium arsenide (GaAs), uses 1314-98-3, Zinc sulfide
 (ZnS), uses 1315-09-9, Zinc selenide (ZnSe) 1315-11-3, Zinc
 telluride (ZnTe) 7440-56-4, Germanium, uses 12024-22-5,
 Gallium sulfide (Ga₂S₃) 12032-36-9, Magnesium sulfide
 (MgS) 12645-36-2, Gallium indium arsenide phosphide
 59989-74-1, Zinc selenide sulfide (Zn(Se,S)) 107874-73-7,
 Cadmium zinc selenide (CdZnSe) 137575-57-6, Magnesium zinc
 selenide sulfide (MgZnSeS)
 (light-emitting Group II-VI compound device
 elements)

L38 ANSWER 20 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:469981 HCAPLUS
 DOCUMENT NUMBER: 125:127352
 TITLE: Electroluminescent devices formed using
 semiconductor nanocrystals as an electron
 transport media and method of making such
 electroluminescent devices
 INVENTOR(S): Alivisatos, A. Paul; Colvin, Vickie
 PATENT ASSIGNEE(S): University of California, USA
 SOURCE: U.S., 13 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 5537000	A	19960716	US 1994-235443	1994 0429
PRIORITY APPLN. INFO.:			US 1994-235443	1994 0429

AB Electroluminescent devices are described which employ a
 semiconductor nanocrystal electron transport layer. The
 electron transport layer may comprise semiconductor
 nanocrystals selected from the group consisting Group IIB
 chalcogenides and Group IIIA pnictides, especially MgS, MgSe, MgTe, CaS,
 CaSe, CaTe, SrS, SrSe, SrTe, BaS, BaSe, BaTe, ZnS, ZnSe, ZnTe,
 CdS, CdSe, CdTe; HgS, HgSe, HgTe, GaAs, InAs, InP, and InSb; and
 mixts. of two or more of the semiconductor compds. The wavelength
 of the light emitted by the device may be changed by changing
 either the size or the type of semiconductor nanocrystals used in
 forming the electron transport layer. In a preferred
 embodiment the device is characterized by the capability of
 emitting visible light of varying wavelengths in response to
 changes in the voltage applied to the device. Displays employing

the devices are also described.

IT 12032-36-9, Magnesium sulfide
 (electroluminescent devices formed using
 semiconductor nanocrystals as electron transport media and
 method of making such electroluminescent devices)

RN 12032-36-9 HCPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H05B033-22
 INCL 313506000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and
 Other Related Properties)
 Section cross-reference(s): 74, 76
 ST electroluminescent device nanocrystal electron transport
 layer; display electroluminescent device nanocrystal
 electron transport
 IT 1303-00-0, Gallium arsenide, uses 1303-11-3, Indium arsenide,
 uses 1304-39-8, Barium selenide 1305-84-6, Calcium selenide
 1306-23-6, Cadmium sulfide, uses 1306-24-7, Cadmium selenide,
 uses 1306-25-8, Cadmium telluride, uses 1312-41-0, Indium
 antimonide, uses 1313-04-8, Magnesium selenide 1314-96-1,
 Strontium sulfide 1314-98-3, Zinc sulfide, uses 1315-07-7,
 Strontium selenide 1315-09-9, Zinc selenide 1315-11-3, Zinc
 telluride 1344-48-5, Mercury sulfide (HgS) 12009-36-8, Barium
 telluride 12013-57-9, Calcium telluride 12032-36-9,
 Magnesium sulfide 12032-44-9, Magnesium telluride 12040-08-3,
 Strontium telluride 12068-90-5, Mercury telluride 20548-54-3,
 Calcium sulfide 20601-83-6, Mercury selenide (HgSe)
 21109-95-5, Barium sulfide 22398-80-7, Indium phosphide, uses
 (electroluminescent devices formed using
 semiconductor nanocrystals as electron transport media and
 method of making such electroluminescent devices)

L38 ANSWER 21 OF 29 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1996:428158 HCPLUS
 DOCUMENT NUMBER: 125:71384
 TITLE: Semiconductor electroluminescent device
 INVENTOR(S): Sumino, Masayoshi
 PATENT ASSIGNEE(S): Nippon Electric Co, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08088444	A2	19960402	JP 1994-225127	1994 0920
PRIORITY APPLN. INFO.:			JP 1994-225127	1994 0920

AB The device consists of a substrate, a high-resistance multilayered buffer layer for decreased dislocations in the grown layer, and n- and p-type electrodes. The device can consist of a high-resistance GaAs substrate, an undoped distorted superlattice layer of an alternating laminate of ZnSe and ZnSSe layers, an undoped ZnSe layer, a buffer layer, and electrodes. The device has a long lifetime.

IT 12032-36-9, Magnesium sulfide
(long-lifetime semiconductor electroluminescent device having multilayered buffer layer)

RN 12032-36-9 HCAPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H01S003-18
ICS H01L033-00

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST semiconductor electroluminescent device buffer layer; zinc sulfide selenide electroluminescent device; gallium arsenide substrate electroluminescent device

IT Electroluminescent devices
(long-lifetime semiconductor electroluminescent device having multilayered buffer layer)

IT Group IIB element chalcogenides
(long-lifetime semiconductor electroluminescent device having multilayered buffer layer)

IT 1315-09-9, Zinc selenide 12032-36-9, Magnesium sulfide
56780-29-1, Cadmium zinc selenide sulfide ((Cd,Zn)(Se,S))
59989-74-1, Zinc selenide sulfide (Zn(Se,S)) 158346-21-5,
Cadmium zinc selenide
(long-lifetime semiconductor electroluminescent device having multilayered buffer layer)

IT 1303-00-0, Gallium arsenide, uses 1344-28-1, Aluminum oxide, uses 7440-21-3, Silicon, uses 12063-98-8, Gallium phosphide, uses 22398-80-7, Indium phosphide, uses
(substrate; long-lifetime semiconductor electroluminescent device having multilayered buffer layer)

L38 ANSWER 22 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1995:605671 HCAPLUS
DOCUMENT NUMBER: 122:326053
TITLE: Semiconductor light-emitting elements
INVENTOR(S): Kondo, Masafumi; Hosobane, Hiroyuki; Sugawara, Akyoshi
PATENT ASSIGNEE(S): Sharp Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 07079017	A2	19950320	JP 1993-220931	
				1993
				0906
JP 2962639	B2	19991012	JP 1993-220931	
PRIORITY APPLN. INFO.:				1993
				0906

- AB A green (or blue) emitting element comprises: (1) a Group III-V substrate; (2) a Group II-VI DH laminate; and (3) a Group II-VI carrier-injection layer, wherein a Group III-V heterojunction layer is formed pattern-wisely between (2) and (3).
- IT 12032-36-9, Magnesium sulfide (MgS)
(blue or green emitting DH lasers or LED with heterobarrier layer)
- RN 12032-36-9 HCAPLUS
- CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg == S

- IC ICM H01L033-00
ICS H01S003-18
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
- IT Electroluminescent devices
(blue or green emitting DH LED with heterobarrier layer)
- IT Lasers
(blue or green emitting DH with heterobarrier layer)
- IT 1303-00-0, Gallium arsenide, uses 1306-23-6, Cadmium sulfide (CdS), uses 1313-04-8, Magnesium selenide (MgSe) 1315-09-9, Zinc selenide 12032-36-9, Magnesium sulfide (MgS) 12063-98-8, Gallium phosphide, uses 22398-80-7, Indium phosphide, uses 59989-74-1, Zinc selenide sulfide (Zn(Se,S)) 135260-03-6, Magnesium zinc selenide (MgZnSe) 137575-57-6, Magnesium zinc selenide sulfide ((Mg,Zn)(Se,S)) 158346-21-5, Cadmium zinc selenide
(blue or green emitting DH lasers or LED with heterobarrier layer)

L38 ANSWER 23 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1995:546754 HCAPLUS
 DOCUMENT NUMBER: 123:354210
 TITLE: Formation of a multilayered structure for electroluminescent device
 INVENTOR(S): Soininen, Erkki; Leppaenen, Marja
 PATENT ASSIGNEE(S): Planar International Ltd., Finland
 SOURCE: Finn., 35 pp.
 CODEN: FIXXAP
 DOCUMENT TYPE: Patent
 LANGUAGE: Finnish
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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FI 92897	B	19940930	FI 1993-3278
			1993 0720
FI 92897	C	19950110	
DE 4425507	A1	19950126	DE 1994-4425507
			1994 0720
JP 07106065	A2	19950421	JP 1994-167933
			1994 0720
JP 3024048	B2	20000321	
US 5496597	A	19960305	US 1994-277818
			1994 0720
PRIORITY APPLN. INFO.:			FI 1993-3278 A
			1993 0720

AB The title device comprises at least one electroluminescent layer consisting of alkaline earth metal sulfide and at least one insulating layer consisting of metal oxide. The insulating layer is deposited on the electroluminescent layer from an organometallic complex in which the metal atom is bound by an acid..

IT 12032-36-9, Magnesium sulfide
(formation of a multilayered structure for electroluminescent device)

RN 12032-36-9 HCPLUS

CN Magnesium sulfide (MgS) (6CI, 8CI, 9CI) (CA INDEX NAME)

Mg—S

IC ICM H05B033-14
ICS H05B033-22; C23C014-22

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 1314-96-1, Strontium sulfide 12032-36-9, Magnesium sulfide 20548-54-3, Calcium sulfide
(formation of a multilayered structure for electroluminescent device)

L38 ANSWER 24 OF 29 HCPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1994:641315 HCPLUS
 DOCUMENT NUMBER: 121:241315
 TITLE: Light-emitting diodes made from cadmium selenide nanocrystals and a semiconducting polymer
 AUTHOR(S): Colvin, V. L.; Schlamp, M. C.; Alivisatos, A. P.
 CORPORATE SOURCE: Department Chemistry, University California, Berkeley, CA, 94720, USA
 SOURCE: Nature (London, United Kingdom) (1994), 370(6488), 354-7
 CODEN: NATUAS; ISSN: 0028-0836
 DOCUMENT TYPE: Journal
 LANGUAGE: English

- AB Electroluminescent devices have been developed recently that are based on new materials such as porous silicon and semiconducting polymers. By taking advantage of developments in the preparation and characterization of direct-gap semicond. nanocrystals, and electroluminescent polymers, we have now constructed a hybrid organic/inorg. electroluminescent device. Light emission arises from the recombination of holes injected into a layer of semiconducting p-paraphenylen vinylene (PPV) with electrons injected into a multilayer film of cadmium selenide nanocrystals. Close matching of the emitting layer of nanocrystals with the work function of the metal contact leads to an operating voltage of only 4 V. At low voltages emission from the CdSe layer occurs. Because of the quantum size effect the color of this emission can be varied from red to yellow by changing the nanocrystal size. At higher voltages green emission from the polymer layer predominates. Thus this device has a degree o voltage tunability of color.
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- Section cross-reference(s): 76
- IT 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses (light-emitting diodes made from cadmium selenide nanocrystals and semiconducting polymer with contact containing)

L38 ANSWER 25 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1993:263455 HCAPLUS
 DOCUMENT NUMBER: 118:263455
 TITLE: White light-emitting phosphor compositions
 INVENTOR(S): Jeong, Il Hyeok; Park, Man Gi
 PATENT ASSIGNEE(S): Samsung Electron Devices Co., Ltd., S. Korea
 SOURCE: Ger. Offen., 8 pp.
 CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 4212170	A1	19930225	DE 1992-4212170	1992 0410
JP 05117655	A2	19930514	JP 1992-75008	1992 0331
PRIORITY APPLN. INFO.:			KR 1991-14544	A 1991 0822

- AB The title phosphor compns. comprise a yellow-emitting phosphor selected from Ca_{1-x}Mg_xS:Mn and/or Ca_{1-x}Mg_xS:Mn,Sc ($0 \leq x \leq 0.05$), a blue-emitting phosphor selected from ZnS:Ag, ZnS:Ag,Ga, ZnS:Ag,Cl, and/or ZnS:Ag,Ga,Cl, and optionally a green-emitting phosphor selected from ZnS:Cu,Cl or from InBO₃:Tb, Zn₂SiO₄:Mn, and/or Zn₂SiO₄:Mn,As.

- IT 107762-61-8, Calcium magnesium sulfide (Ca_{0.98}Mg_{0.02}S)
 148047-55-6, Calcium magnesium sulfide (Ca_{0.95}Mg_{0.05}S)

148047-56-7, Calcium magnesium sulfide ($\text{Ca}_0.97\text{Mg}_0.03\text{S}$)
 (phosphors based on, white light-emitting
 compns. containing)

RN 107762-61-8 HCPLUS

CN Calcium magnesium sulfide ($\text{Ca}_0.98\text{Mg}_0.02\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.98	7440-70-2
Mg	0.02	7439-95-4

RN 148047-55-6 HCPLUS

CN Calcium magnesium sulfide ($\text{Ca}_0.95\text{Mg}_0.05\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.95	7440-70-2
Mg	0.05	7439-95-4

RN 148047-56-7 HCPLUS

CN Calcium magnesium sulfide ($\text{Ca}_0.97\text{Mg}_0.03\text{S}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.97	7440-70-2
Mg	0.03	7439-95-4

IC ICM H01J029-20

ICS H01J001-63; C09K011-56

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Phosphors

(white-light-emitting, compns. for)

IT 7439-96-5, Manganese, uses 7440-20-2, Scandium, uses

7440-22-4, Silver, uses 7440-27-9, Terbium, uses 7440-38-2,
 Arsenic, uses 7440-50-8, Copper, uses 7440-55-3, Gallium, uses
 7782-50-5, Chlorine, uses

(phosphors activated with, white light-emitting
 compns. containing)

IT 1314-98-3, Zinc sulfide, uses

(phosphors based on, white light-emitting
 compns. containing)

IT 13597-65-4, Zinc silicate (Zn_2SiO_4) 13709-93-8, Indium borate

(InBO_3) 20548-54-3, Calcium sulfide (CaS) 107762-61-8,

Calcium magnesium sulfide ($\text{Ca}_0.98\text{Mg}_0.02\text{S}$) 148047-55-6,

Calcium magnesium sulfide ($\text{Ca}_0.95\text{Mg}_0.05\text{S}$) 148047-56-7,

Calcium magnesium sulfide ($\text{Ca}_0.97\text{Mg}_0.03\text{S}$)

(phosphors based on, white light-emitting
 compns. containing)

L38 ANSWER 26 OF 29 HCPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:560320 HCPLUS

DOCUMENT NUMBER: 117:160320

TITLE: White-light-emitting

INVENTOR(S): luminous substance
 Jeong, Il Hyeok; Choi, Jong Sik
 PATENT ASSIGNEE(S): Samsung Electron Devices Co., Ltd., S. Korea
 SOURCE: Ger. Offen., 5 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4136311	A1	19920507	DE 1991-4136311	1991 1104
CN 1061034	A	19920513	CN 1991-108395	1991 1102
PRIORITY APPLN. INFO.:			KR 1990-17776	A 1990 1102

AB The title substance comprise a blue-emitting ZnS-based luminous material (e.g., ZnS:Ag; ZnS:Ag, Cl; and/or ZnS:Ag, Ga) and a yellow-emitting CaS-based luminous material (e.g., Ca_{1-x}Mg_xS:Mn, Ce; or a mixture of Ca_{1-x}Mg_xS:Ce and Ca_{1-x}Mg_xS:Mn; 0 ≤ x ≤ 0.5).

IT 143712-06-5, Calcium magnesium sulfide (Ca_{0.5-1}Mg_{0-0.5}S)
 (white light emitting luminous material containing)

RN 143712-06-5 HCAPLUS

CN Calcium magnesium sulfide (Ca_{0.5-1}Mg_{0-0.5}S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.5 - 1	7440-70-2
Mg	0 - 0.5	7439-95-4

IC ICM C09K011-56
 ICS H01J001-63

ICA H01J029-20

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Phosphors
 (white-light-emitting, containing calcium sulfide- and zinc sulfide-based phosphors)

IT 1314-98-3, Zinc sulfide, uses
 (white light emitting luminous material containing)

IT 20548-54-3, Calcium sulfide 143712-06-5, Calcium magnesium sulfide (Ca_{0.5-1}Mg_{0-0.5}S)
 (white light emitting luminous material containing)

IT 7439-96-5, Manganese, uses 7440-22-4, Silver, uses 7440-45-1, Cerium, uses 7440-55-3, Gallium, uses 7782-50-5, Chlorine, uses
 (white light emitting luminous material)

containing calcium sulfide phosphors activated with)

L38 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1989:467657 HCAPLUS
 DOCUMENT NUMBER: 111:67657
 TITLE: Alkaline earth sulfide mixed crystal-based
 electroluminescent devices
 INVENTOR(S): Yoshioka, Toshihiro
 PATENT ASSIGNEE(S): NEC Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01027194	A2	19890130	JP 1987-183920	1987 0722
PRIORITY APPLN. INFO.:			JP 1987-183920	1987 0722

AB A thin-film **electroluminescent** (EL) device has a **light-emitting** layer comprising an Eu-activated mixed crystal of MgS and CaS. An EL device having the **light-emitting** layer emits red light with highly pure color and brightness at high efficiency. A Mg0.4Ca0.6S:Eu layer was deposited on a glass substrate bearing a transparent electrode, a 1st insulating Ta₂O₅ layer was formed by electron beam evaporation in vacuum, and coated with a 2nd insulating Al₂O₃ layer and then with an Al electrode to give an EL device emitting highly pure red light at improved efficiency as compared to an EL device having a MgS:Eu **light-emitting** layer.
 IT 121834-31-9, Calcium magnesium sulfide (Ca0.6Mg0.4S)
 (red-emitting layer for **electroluminescent** devices
 from europium-activated)
 RN 121834-31-9 HCAPLUS
 CN Calcium magnesium sulfide (Ca0.6Mg0.4S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.6	7440-70-2
Mg	0.4	7439-95-4

IC ICM H05B033-14
 ICS C09K011-00; C09K011-56
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 ST **electroluminescent** device thin film; magnesium calcium sulfide **electroluminescent** device
 IT **Electroluminescent** devices
 (film, red-emitting layer for, from europium-activated calcium magnesium sulfide)
 IT 7440-53-1, Europium, uses and miscellaneous

(red-emitting layer for electroluminescent devices
from calcium magnesium sulfide activated with)
IT 121834-31-9, Calcium magnesium sulfide (Ca0.6Mg0.4S)
(red-emitting layer for electroluminescent devices
from europium-activated)

L38 ANSWER 28 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1987:467098 HCAPLUS
DOCUMENT NUMBER: 107:67098
TITLE: Alkaline-earth sulfide luminophors activated
with tin
AUTHOR(S): Dafinova, R.
CORPORATE SOURCE: Dep. Inorg. Chem., Fac. Chim., Bulg.
SOURCE: Godishnik na Sofiiskiya Universitet Sv.
Kliment Okhridski, Khimicheski Fakultet
(1986), Volume Date 1982, 76, 3-7
CODEN: GSKFAL; ISSN: 0584-0317
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Luminescent spectra and afterglow were studied for Sn-activated alkaline earth sulfides containing Ca, Sr, Mg, and Ba. Sn, as the activator, creates luminescent centers with an emission in the short or long wave spectral range, depending on the composition of the alkaline earth sulfides.

IT 109676-59-7
(luminescent spectra and afterglow of tin-activated)

RN 109676-59-7 HCAPLUS

CN Calcium magnesium sulfide (Ca0.88Mg0.12S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.88	7440-70-2
Mg	0.12	7439-95-4

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST luminescence afterglow alk earth sulfide tin

IT Luminescence
(of tin-activated alkaline earth sulfides)

IT Luminescence
(afterglow, of tin-activated alkaline earth sulfides)

IT Alkaline earth chalcogenides
(sulfides, luminescent spectra and afterglow of tin-activated)

IT 7440-31-5, Tin, properties
(luminescent spectra and afterglow of alkaline earth sulfides activated with)

IT 1314-96-1, Strontium sulfide 109676-44-0 109676-56-4
109676-59-7 109676-60-0 109676-76-8
(luminescent spectra and afterglow of tin-activated)

L38 ANSWER 29 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:165770 HCAPLUS
DOCUMENT NUMBER: 106:165770
TITLE: Long-afterglow white phosphors
INVENTOR(S): Sato, Atsukazu; Takatsushi, Kazuhiko
PATENT ASSIGNEE(S): Mitsui Mining and Smelting Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61192787	A2	19860827	JP 1985-32841	1985 0222
PRIORITY APPLN. INFO.:			JP 1985-32841	1985 0222

AB A long-afterglow orange phosphor of the general formula $\text{Ca}_{1-x}\text{Mg}_x\text{S}: \text{Mn}, \text{Sc}$ ($0 \leq x \leq 0.04$) and a long-afterglow blue phosphor of the general formula $\text{CaS}: \text{Cu}(y \text{ mol\%})$, M ($0.05 \leq y \leq 0.5$; M = Li, Na, K) are mixed to give the title phosphors. The phosphors show high luminosity, are fabricated at low cost, and are not poisonous. The phosphors are hence useful in cathode ray tubes for display. Thus, an orange phosphor $\text{CaS}: \text{Mn}(0.2 \text{ mol\%})$, $\text{Sc}(0.1 \text{ mol\%})$ 60 was mixed with a blue phosphor $\text{CaS}: \text{Cu}(0.15 \text{ mol\%})$, Na 40 parts to obtain a long-afterglow white phosphor, which showed a luminescence efficiency 14% and an afterglow time constant ($\tau_{1/10}$) 21 ms by excitation with a 27-kV electron beam.

IT 107762-62-9
 (phosphor from manganese- and scandium-, long afterglow white phosphor from mixture containing)

RN 107762-62-9 HCAPLUS

CN Calcium magnesium sulfide (Ca0.99Mg0.01S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.99	7440-70-2
Mg	0.01	7439-95-4

IT 107762-60-7 107762-61-8
 (phosphor from manganese- and scandium-containing, long afterglow white phosphor from mixture containing)

RN 107762-60-7 HCAPLUS

CN Calcium magnesium sulfide (Ca0.96Mg0.04S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9
Ca	0.96	7440-70-2
Mg	0.04	7439-95-4

RN 107762-61-8 HCAPLUS

CN Calcium magnesium sulfide (Ca0.98Mg0.02S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	1	7704-34-9

S		1	7704-34-9
Ca		0.98	7440-70-2
Mg		0.02	7439-95-4

IC ICM C09K011-08
ICS H01J029-20

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 107762-62-9
(phosphor from manganese- and scandium-, long afterglow white phosphor from mixture containing)

IT 107762-60-7 107762-61-8
(phosphor from manganese- and scandium-containing, long afterglow white phosphor from mixture containing)